The Boston Medical and Surgical Journal

TABLE OF CONTENTS

May 8, 1919

Original Articles.

A NOTE ON SOUTHARD'S ORDER OF EXCLUSION IN PSYCHIATRIC DIAGNOSIS.*

By Lawson G. Lowrey, A.M., M.D., Boston,

Chief Medical Officer, Psychopathic Department, Boston State Hospital; Instructor in Neuropathology and in Psychiatry, Harvard Medical School.

Southard has made an important contribution to the technique of diagnosis with his key principle dealing with the order of exclusion of the various great groups of mental diseases (*Jr. of Laboratory and Clinical Medicine*, IV, 2, November, 1918, page 31). His principle may be stated as follows: Diagnostic data should be considered according to a definite order of exclusion of psychiatric groups. Not the least important part of his contribution has been the series of disease groups erected. His eleven groups include all of the disease and defect conditions that have been separated from time to time, and set up as entities. At the present time, however, I am concerned not so much with the value and necessity for such grouping as with the principle of orderly exclusion, and particularly with the order laid down by Southard as involving certain of his groups.

It appears to me that this principle of exclusion of groups according to a certain order is of the highest importance. We are aware of the fact that diagnosis by exclusion is of great value in general medicine. Furthermore, we are all familiar with the idea of presenting symptoms and diagnosis by exclusion of the various disease processes which might give rise to such a presenting symptom. In psychiatric diagnosis there are apparently no single presenting symptoms. Instead, we deal in each case with a complex of symptoms producing a conduct disorder or an anomaly of reaction which in itself is not a distinctive symptom. We then proceed to build up a picture of the total patient, including family and personal (intelligence, make-up, and general reactive) background of the individual case as it has presented itself. Now, each bit of data that we collect while serving to make up the total picture of the case also serves as an excluding process to narrow down our field of inquiry. We should always thus proceed from mass to detail, although this is particularly difficult to impress upon younger psychiatrists and students. Ordinarily we go through such a process of building up and exclusion rapidly and without particular analysis of the methods which we pursue.

* A contribution to the 1919 Series of Psychopathic Hospital Publications. Read before the Boston Society of Neurology and Psychiatry, March 20, 1919.

For the training of psychiatrists, however, it is necessary to have a definite method in our procedures of diagnoses. Since, then, we attempt to get all of our data together before attempting to arrive at a diagnosis, and since, too, we must prepare some type of definite process of arriving at a correct diagnosis by differentiation, it seems to me that this orderly scheme for the analysis of our diagnostic data is very necessary.

Granted then that the idea of orderly exclusion is an important one for differential diagnosis in psychiatry, we now need to know how to determine the order of exclusion. There are conceivably a number of different principles on which we could erect an orderly diagnostic scheme of the mental disease groups. We could, of course, erect a statistical scheme and arrange each group in order according to its numerical frequency. This, however, would give us a series of poorly related groups, since groups difficult of differentiation from one another would fall into no definite order. Probably, also, our scheme would vary from institution to institution, since we find such great variations in the frequency of various psychoses as reported by the different institutions in the State of Massachusetts for any one year. I cannot see that such a scheme would give rise to a logical ordering of groups that would be of value either to practitioner, teacher, or student.

It seems that the order of the groups should be determined by the following principles:

1. *Basic importance.* By this I mean that what we call one disease, such, for instance, as syphilis of the nervous system, may be the nidus around which the symptoms or abnormal mental state ordinarily occurring in other groups may arise; or that a defect condition of a particular type may be the basis on which other and presumably distinct abnormal states may arise. Now an ordinal key based on such a principle as this would probably have as a first heading, Constitutional Inferiority; 2—Mental Deficiency; 3—Epilepsy; 4—Neurosyphilis; 5—Alcoholism, rated in this instance upon their probable statistical frequency as bases for other states. Such a scheme as this is in many ways logical, but seems to me to proceed from the simple to the complex, whereas in the process of actual diagnosis our tendency (measured both statistically and introspectively) is to proceed from complex to simple. Accordingly, before we arrive at a diagnosis of psychopathic inferiority we invariably exclude all of the so-called disease states which may arise on the basis of psychopathic inferiority. However, it is to be maintained that this principle of excluding diseases or conditions or disease processes, which may be the basis of other and usually non-related abnormal states, is of the highest importance.

2. *Accuracy of Data.* We should, of course, exclude first all those groups in which our objective data of diagnosis are the most reliable. Such objective data are most precise in neurosyphilis, feeblemindedness, epilepsy, alcoholism, somatic disease, and focal brain disease, since in these groups the history or laboratory or physical findings are more precise than in the other groups, and, furthermore, there are more objective data obtainable.

3. *Similarities of Etiology and Symptomatology.* In the collection of data and in their differentiation (diagnosis) we want to exclude first the groups in which the etiology is known or in which the direct casual agent is frequently demonstrable. In the statistical manual of the A.M.P.A. we find at the head of the list all of those conditions in which there is actual demonstrable damage to the brain. In other words, all groups in which the etiology is known stand well toward the head of the list, leaving toward the bottom those whose etiology is unknown or is doubtful, or is endogenous. If we first exclude all of the exogenous and organic cases we may then proceed to a study of the psychogenesis or the abnormal make-up, etc., attempting to demonstrate thereby the diagnosis and the psychopathology of the condition. Certainly, a purely etiological grouping is the one we wish in the end to attain, but even if the etiology of all the phychoses were known we should still have to erect an ordinal scheme, and that on other principles than just this one.

From the standpoint of symptoms it seems to me best to consider as sequential groups those with similar symptoms, so far as possible, in order that we may precisely place our difficulty in diagnosis in the consideration of the symptom complex which may be caused by several agencies. We ordinarily group them together for evaluation and proceed to exclude somewhat according to the statistical frequency.

4. *Therapeutic Possibilities.* These should

always be kept in mind, but this principle is not the most important for determining the order of exclusion in diagnosis.

5. *Outcome.* The majority of our mental disease groups have been erected on a basis of outcome. However valuable this method may be in determining what groups of mental disease actually exist, it is not of value in determining the order of diagnostic exclusion. We could, of course, make a scheme arranging our groups according as they terminate in dementia, defect, recurrence, or recovery, but this is of little value and our prognosis is sufficiently frequently wrong to make it distinctly undesirable.

From the above analysis it is obvious that no one principle is sufficient to cover all of the possibilities of ordering the groups. We should instead attempt to place each group according to the number of principles which seem to indicate its position. Personally, I find that in diagnosis of any case I want to exclude certain conditions first of all. These are syphilis, feeblemindedness, epilepsy, alcoholism, bodily disease, and organic brain disease, somewhat in the order mentioned. I also find that I must determine the type of pathological mental state present. Having done this, which represents usually a great deal of work and the accumulation of all possible data about the patient, I can then proceed to a differential diagnosis. All of the pathological mental states can apparently be grouped into a relatively small number of what Meyer has called "reaction types" or "reaction complexes," meaning thereby presumably mental symptom complexes. I ordinarily conceive two broad groups of pathological reaction types, the organic-toxic-epileptic-defect group, with symptoms of *differential* merit lying primarily in the intellect (sensory) field with secondary emotion-will disturbance; and the schizophrenic-cyclothymic-psychoneurotic-psychopathic group with symptoms primarily in the emotion-will and secondarily in the other fields. It is possible and necessary rapidly to determine to which of these broad groups a given case belongs, so narrowing our field of inquiry rapidly and accurately. Southard's first seven groups belong to my first group, and the other four fit into my second group.

Southard has grouped the mental diseases as follows:

1. Syphilopsychoses (neurosyphilis).
2. Hypophrenoses (feeblemindedness).
3. Epileptoses (epilepsy).
4. Pharmacopsychoses (alcohol, drugs, poisons).
5. Encephalopsychoses (focal brain diseases).
6. Somatopsychoses (symptomatic, toxic, infectious).
7. Geriopsychoses (Presenile, senile).
8. Schizophrenoses (dementia precox, paraphrenia).
9. Cyclothymoses (manic depressive).
10. Psychoneuroses.
11. Psychopathoses (other psychoses or psychopathia).

I want now to examine in some detail this order. To me it is obvious that the syphilitic group should head any key for orderly diagnosis because of the basic importance, because of the therapeutic possibility, and particularly because of the accuracy of the data available for diagnosis. For similar cogent reasons hypophrenia should stand second, but here the principal reason will be the basic importance, although both of the other points are worth considering. The position of epilepsy is possibly a point to question, but if we remember the wide variety of states which may arise in connection with epilepsy and, further, the accuracy of the history in the majority of cases, its position seems clear. Similarly, alcohol, drugs, and poisons should come next, because of their frequency, the multiplicity of the disease states encountered and the frequent resemblance of alcoholic states to others of more obscure causation. It is particularly with the orderly placing of groups V and VI that I am concerned. These groups clearly shade into one another on grounds of etiological and symptom similarity. Hence, they should be in sequence. Possibly on the ground of therapeutic possibility, the somatic diseases should be placed first. This, however, is not quite clear. However, on basic importance it would seem to me that the somatic diseases need first to be excluded. Many somatic diseases also involve the brain directly instead of secondarily through the medium of toxins, however elaborated. Hence, we find need to determine the presence or absence of somatic disease in cases which seem to be problems of brain disease.

But it is particularly from the standpoint of symptom similarity that I would urge the

change in order. Group 7, including the senile psychoses, is clearly more nearly related in symptoms, and in most cases in the mechanism of production, to the brain diseases than to the somatic. To be sure, this was one reason why Southard adopted this particular order. He wished to avoid juxtaposing two such symptomatically and geriatically similar groups. However, as I have said before, it seems to me always wise to consider in order and in detail such similar groups, since then we always hold sharply in mind the confusing groups and our analysis is apt to be more adequate from the point of view of both.

Let us contrast the alcoholic and somatic groups and take up first the symptom analysis of the alcoholic group. We have to do with pathological intoxication, delirium tremens, alcoholic hallucinosis, dipsomania and acute alcoholism, Korsakow's, the alcoholic paranoid conditions and alcoholic dementia. Of these certain ones need not be further considered. Delirium tremens is found difficult to differentiate from the endotoxic deliria, since there is no good and positive symptom for such differentiation. Tremor occurs in either group, although more likely in tremens. Elevation of temperature is very common in tremens cases even in the absence of any demonstrated pneumonia. The character of the hallucinations and of the clouding of consciousness is not at all characteristic. The fundamental points of differential value in any doubtful case are not to be found in the mental symptoms, but in the demonstration of a physical disease capable of causing a delirium in the absence of alcohol; or the absence of such a disease, combined with a history of the use of alcohol in quantities sufficient to give rise to the symptoms. Cases presenting the symptomatology of alcoholic hallucinosis in the absence of alcohol, but in the presence of acute infectious disease are rare, but do occur. In the recent influenza epidemic a considerable number of such cases have been seen in this particular institution. The cases presenting the symptoms of acute alcoholic hallucinosis often show many symptoms allied to delirium tremens, although in the typical case the differential diagnostic problem with alcoholic hallucinosis is paranoid dementia precox. Our experience makes it evident that either delirium tremens or the rather typical hallucinoses may be closely simulated in cases arising from somatic disease, including acute infections, chronic kidney disease, etc.

Korsakow's syndrome is a good instance of the order of our differential diagnosis. Most commonly due to alcohol, it may also be caused by acute infectious disease, by chronic endotoxic diseases, by cerebral arteriosclerosis, and occurs in senile cases in the absence of all of these causes. In any Korsakow's case we would exclude its various causes in just this order. Similarly in a case of intellectual deterioration, we would proceed in the same order to exclude alcoholism, chronic somatic disease, brain disease and senility, this in somewhat the order of complexity of study and facts to be obtained, ranging down to the simplest, since senile deterioration is likely to have less complicating factors than the others.

Also we find that the symptom groups in the alcohol, drug, and poison series have, as a rule, little relation to such groups in the focal brain diseases. There are cases of focal brain disease showing delirious states, or Korsakow's syndrome, etc., but these are certainly in the minority. In the majority of cases we have to do with symptoms of dementia, of slow development, and chronic character. Encephalic diseases, however, have a distinct symptomatic relationship to the senile psychoses. We are all aware of the proverbial difficulty in differentiation between senile dementia and arteriosclerotic states. Brain tumor cases with marked mental symptoms are quite likely to show them in the form of dementia, which is not entirely characteristic. In both of these groups we are dealing with processes leading not only to marked interference with function, but to actual loss of brain cells. Hence, we should naturally expect a similarity in the symptoms between brain disease and the senile diseases.

If we consider also the fact that many somatic cases are distinguished only with difficulty from encephalic diseases, it seems to me that this position is strengthened. Well known are the difficulties in determining in cardiorenal and vascular cases whether we are dealing with a toxic somatic condition or with actual vascular disease of the brain.

Now, if we can so easily demonstrate the similarity in symptoms between the pharmacopsychoses and the somatopsychoses on the one hand, and the encephalopsychoses and the geriopsychoses on the other, and can

further show that from the other points of view the groups should be arranged in this order, I believe it is logical to arrange them in an ordinal exclusion scheme in such a succession that this set of diagnostic difficulties is recognized. Hence, I propose that Groups V and VI be interchanged (making V somatopsychoses and VI encephalopsychoses), thus rendering the scheme somewhat more logical and somewhat better adapted to the problems of differential diagnosis in psychiatry.

CHANGING METHODS AND ADVANCES IN THE TREATMENT OF PROGRESSIVE DEAFNESS FOLLOWING CHRONIC CATARRHAL OTITIS MEDIA. (SECOND COMMUNICATION).*

By Francis P. Emerson, M.D., F.A.C.S., Boston,

Major, M. C., U. S. Army.

In the etiology of chronic secretory, exudative, catarrhal, or hypertrophic otitis media, aurists are in accord as to the pathology and necessary treatment of the eustachian tube and middle ear, but there is still a wide diversity of opinion in regard to the conditions that have preceded the chronic state and as to what steps are necessary to arrest or improve a disease that affects the majority of our office clientele. If we consult our latest textbooks we find that adenoids are mentioned as first in the list of causes, and here, especially in children, there would be no controversy. The second (still to quote from the latest textbook), recurrent attacks of subacute catarrhal otitis media, in which resolution is never quite complete, is given as a cause. Third, frequent attacks of acute rhinitis, each attack giving rise to more or less tubo-tympanic congestion. Fourth, obstructive nasopharyngeal lesions resulting in chronic tubal catarrh which later involves the tympanum. The writer would respectfully submit as a substitute for these subdivisions, except the first as a primary cause, the result of early infections, usually the sequelae following the infectious diseases and la grippe. These diseases leave a streptococcus focus which becomes chronic and is indefinitely subject to acute exacerbations, causing recurrent attacks of subacute catarrhal otitis media, frequent attacks of what seem to be acute rhinitis, yet are not fresh infections, but the lighting up of this chronic focus, and lastly making obstructive nasopharyngeal lesions potential factors in deafness only because the impaired drainage keeps up the chronic infection. In taking the histories of these chronic cases one is impressed with the fact that these patients have had various manifestations of the same infection, dating back to an attack of diphtheria, measles, scarlet fever, or la grippe. These foci have resulted in secondary involvement of the lymphatic or osseous tissues, and such focal processes are subject to acute exacerbations, while existing as a low grade infection in the interval. These exacerbations are so constant that it is a question whether acute infections ever take place in a normal nasopharynx. The writer confesses that in late years he has not been able to make a differential diagnosis between otitis catarrhalis adhesiva and the catarrhal or hypertrophic processes from the viewpoint of etiology. Many cases showing but little evidence of secretory changes in the membrana tympani with the nasopharynx clean and no thickening of the mucous membrane have had a definite chronic focus in the throat. In these cases the writer formerly relied upon the hearing test for a diagnosis. He now believes all of them to be due to a toxine, and any differential diagnosis should be based on the tissue reaction in the tympanum rather than upon any difference in origin. Some of the cases here cited show the final stage of a catarrhal process where the hypertrophic changes have been succeeded by secondary atrophy and nerve degeneration after a steady progression from the throat or nasopharynx to the eustachian tube, tympanum, and inner ear. Many other cases with apparently the same etiology are followed by extreme deafness showing toxic nerve changes that seem to have been caused by absorption directly through the lymphatics or blood streams. The toxic focus that caused the nerve changes in the inner ear probably accounts for the intestinal toxemia referred to by Stucky and other writers.

May 28, 1917. E. J. P. Born, Rhode Island, 45 years. Married. Merchant. P. H., diphtheria, measles, scarlet fever. No aural history in childhood. Rheumatism seven years ago. Laid up six to seven weeks. Acute infections in the head constantly. In 1901 had la grippe

* Read before the American Otological Society, Atlantic City, May 25, 1918. (Revised.)

and lost the hearing in the right ear gradually. No history of discharge. Tinnitus with bad weather. Hearing varies with climatic conditions. Not so good when tired. History of operation in left nose twenty years ago. Never been right since. *Examination—Nares.* Left posterior spur and senechia almost closing the posterior naris. Contact with posterior end of inferior turbinate. Cryptic tonsillar disease. Central adenoid. Both eustachian tubes obstructed at the isthmus. Right more open at pharyngeal end. *Ears.* A. D.—Membrana tympani indrawn. Capillaries injected along the manubrium. L. R. gone. Ground glass appearance. A. S.—Membrana tympani indrawn. Ground glass appearance. All folks above 512 heard.

R.	W. V.	L.
1/6/25		1/6/25
11″/24″	R 512C²	6″/22″
6″/9″	256C²	6″/8″
	+<W	
96	L. L.	96

No alcohol, tobacco moderate, no venereal history. X-Ray of the teeth and sinuses negative. Operation at Brooks Hospital, May 29, 1917. Senechia removed. Spur removed with saw. Both antra opened. Tonsil and adenoid operation. (Right tonsil contained free pus.)

November 16, 1917. Right eustachian tube. Duel's electric bougie (constriction thick at isthmus and would admit only the second size Yankauer bougie). Injections along the manubrium disappeared. Tinnitus stopped. Reaction caused return of tinnitus and tube could not be bougied.

December 28, 1917. Right eustachian tube. Electrolysis.

February 28, 1918. Both tubes open. Bougied, argyrol 20 per cent. on cotton applicator. Sinusoidal current (multiplex and slow), using each five minutes in each ear.

The above hearing test shows the loss of function resulting from a toxic focus. As complications we have marked nasal obstruction, lymphoid tissue in the vault, and a decided narrowing of both eustachian tubes at the isthmus with diseased tonsils, *the free pus in the tonsils being the most important.*

Status Presens. After treatment for a year his eustachian tubes are open, the tinnitus and feeling of obstruction gone, but his hearing remains unchanged. He has had one acute infection during the year at the time of a general epidemic.

If we admit that a pyogenic focus can be present throughout life as a streptococcus infection, subject to acute exacerbations, then we must concede that toxemia with subsequent nerve degeneration plays a more important part in non-suppurative middle ear disease than we have supposed in the past. From analogy we would expect that the synapses of the auditory pathway that are sensitive to the poisons of quinine, salicylic acid, morphia, alcohol, tobacco, etc., would also be vulnerable to constant toxic absorption from a focal process. Clinically this seems to be so, and also there seems to be a selective action that sometimes involves the cochlear and sometimes the vestibular branch of the auditory nerve.

It is known by all aurists that following a suppurative otitis media the ossicular chain may be broken by necrosis and sloughing, leaving wide gaps in the conducting apparatus; in addition, the membrana tympani may be gone and yet the patient may hear very well. Cases of effectiva otitis media may show elacarious deposits with marked thickening of the whole drum, and yet there may be a fairly good functioning ear. On the other hand, many cases of catarrhal deafness may show but little change in the membrana tympani and yet have considerable loss of hearing, especially in the upper register. Is this due to changes in the conducting apparatus or is it due to beginning auditory nerve degeneration, or to both causes? In the judgment of the writer it is not necessary to have marked changes in bone conduction, unless it be to raise it in the early stages to have toxic nerve deafness in connection with chronic hypertrophic otitis media. In these cases there is often a hearing test that is almost identical on both sides. Represented graphically it would be like the following for a chronic condition:

Malleus movable. Folks above 512 heard faintly or not at all. Tinnitus marked.

R.	W. V.	L.
Shout		Shout
12″/22″	Rinne 512C″	10″/20″
	W>+	
512	L. L.	512

A hearing test like the above cannot be explained on the theory of a conduction deafness. It is not conceivable that both ears would show the same degree of impairment throughout the scale. On the other hand, if we remember that the auditory nerves, after passing to the second

temporal convolution, send as many fibers to the opposite side of the brain as remain on the proximal side, then we can understand how a toxic process would ultimately affect both ears to the same extent.

This patient, 48 years of age, commenced to be deaf as a girl, following scarlet fever. Diseased tonsils with a low grade pharyngitis and progressive loss of hearing without marked attacks of tonsillitis was the subsequent history. In cases of this type the writer believes that in the hypertrophic stage of catarrhal otitis media mechanical obstruction to the sound waves is an important factor in impairment of hearing. When, however, secondary atrophy has commenced and the infection has extended well into the eustachian tubes as a chronic process, then the effect of toxemia upon the auditory labyrinth or auditory nerves is equally important with extension from the tympanum. Tinnitus, which is only another name for vestibular irritation, has for its exciting cause changes in the eustachian tubes more often than anywhere else. The loss of tension or the relaxation of the membrana tympani is not so much a cause of deafness, but this condition indicates a wide open and usually infected eustachian tube with secondary atrophy, except in a few cases when it is due to auto-inflation or repeated politerization.

The following case was treated and the hearing tests made by Lieut. J. R. Gorman, M.C.

Boyer, Louis—22 years. Family history negative. Present illness: For the past three years the patient has had tinnitus like escaping steam. At first this was confined to the right ear. Six months later it was noticed in the left ear. The hearing became noticeably impaired about two and one half years ago. Tonsillitis and head colds occasionally with increase of tinnitus.

Influenza. Patient has influenza October 1918. At this time his condition was very much aggravated in regard to his hearing and the tinnitus. *Special Examination.* A. S.—M. T. retracted. Cone of light but little distorted, if any. Appearance of M. T. indicates but little pathology. A. D.—M. T. shows slightly more retraction than in opposite ear, with but little distraction of the cone of light. *Nose.* High bulbous enlargement of septum which is more marked on the right side. *Posterior Nares.* Shows posterior tip of right inferior turbinate hypertrophied and almost in contact with the right side of the septum. M. M. of septum in the region of the right inferior turbinate very much thickened, showing frequent contact. *Tonsils.* Hypertrophied showing muco-pus on both sides. *Hearing Test.*

Right Ear		*Left Ear*
12 inches	Watch	24 inches
5 feet	Loud whisper	4 feet
ac 3		ac 10
—=—	(512C″)	—=—
bc 8		bc 7

Patient was admitted to the hospital December 23, 1918. The nose, epipharynx, and throat were treated daily with 25 per cent. argyrol rubbed over the surface of the M. M. until December 26, when tonsillectomy was done. Treatments resumed locally until December 30, when a submucous resection of the septum was performed. *General Treatment.* January 2, 1919, the patient was sent to the ward and put to bed. Magnesium sulphate, one ounce, the first morning, and drams two for the four following days was given. High cleansing enema once a day for seven days. Pilocarpine hydrochlorido grs. $^1/_{20}$ to test patient's reaction. Each morning for the five following days a subcu. of $^1/_{10}$ pilocarpin was given, and the patient well covered with blankets. During this time the patient had local treatment of the nose, epipharynx and pharynx with 25 per cent. argyrol.

The following tests cover the time the patient was under observation:

Dec. 28, 1918.

Right Ear		*Left Ear*
12 inches	Watch	26 inches
5 inches	whispered voice	4 feet
ac		ac
— 3/9	512C″	— 14/10
bc		bc

Jan. 5, 1919.

Right Ear		*Left Ear*
12 inches	Watch	24 inches
5 inches	whispered voice	4 feet
ac		ac
— 3/8	512C″	— 7/10
bc		bc

Jan. 17, 1919.

Right Ear		*Left Ear*
12 inches	Watch	30 inches
15 inches	whispered voice	4 feet
ac		ac
— 3/10	512C″	— 14/10
bc		bc

Jan. 23, 1919.

Right Ear		*Left Ear*
20 inches	Watch	43 inches
18 inches	whispered voice	8 feet
ac		ac
— 5/10	512C″	— 15/15
bc		bc

The accompanying hearing test shows the result of a long continued toxic process acting in the same way as the systemic poisons upon the auditory labyrinths or auditory nerves. These cases are very common in which the hearing test is almost identical on both sides, the stapes movable, and in which a diagnosis of otitis catarrahalis adhesiva is often made. The clinical history is one of frequent days marked by malaise, the hearing is worse with the exacerbations of the throat irritation or exhaustion, and the etiology dates back to a streptococcus infection following grippe or the infectious diseases. The writer has seen many similar cases that were examined earlier, while the Rinné test was still positive, that seemed to point to some systemic poison and in which syphilis was considered as a probable cause. A careful history often revealed a very definite beginning of the deafness, with the exciting cause still active after a long number of years. In many cases the pharyngeal vault is free of lymphoid tissue and there is no history of head infections. The patient may even deny any tendency to sore throat and yet the degenerate and infected tonsil in adults is usually the seat of the auto-intoxication and deafness. We may not be able to make a diagnosis of a toxic focus, however, without noting the injection of the pillars of the palate, the perverted secretion of the pharynx, and the location of acute exacerbations, the macroscopic appearance of the gland itself not being sufficient ground upon which to base our conclusions. In association with these cases of lymphoid infection are many latent antra and apical abscesses of the teeth that may be overlooked more easily than pyogenic foci elsewhere, as, for instance, the ethmoid labyrinth. In chronic hypertrophic otitis media frequent attacks of rhinitis or recurring attacks of tubo-tympanic congestion are the rule, because the primary cause remains latent, and exhaustion is as productive of an acute exacerbation as is exposure. Whether the otoscopic examination of the tympanum indicates a previous exudative catarrh or is clear, depends upon whether the toxine was absorbed directly through the lymphatics or blood stream, or first caused a low grade process in the epipharynx tube and tympanum. Both conditions may obtain in the same patient with the same etiology.

March 18, 1918. Mrs. R.; 52 years. Born Massachusetts. Married. P. H. Always well and not subject to acute infections. Commenced to grow deaf 20 years ago. There has been a gradual loss of hearing each year since. She has been under the constant care of a good aurist whose treatment has been directed largely to the tubes. Vertigo, no history of. Tinnitus, slight once for 24-48 hours. Headaches, history negative. Hearing not affected by climatic conditions. Scarlet fever at 4 years, diphtheria at 14 years, measles at 10 years. Throat trouble commenced as a child. *Examination—Ear.* A. S. But little change in M. T. A. D.—M. T. Ground glass appearanee. Manubrium not injected. Indrawn. L. R. gone. No areas of atrophy or thickening. Nasopharynx—Breathing free, septum straight, no posterior hypertrophies. Drainage good. No infection. Accessory sinuses negative. R. Fossae free. *Pharynx.* Low grade pharyngitis, especially marked on the sides. M. M. looks thickened and darkly congested. *Tonsils.* Cryptic tonsillar disease. Both small and submerged. Patient now states that for years she has had an unusual amount of thick secretion in her throat, especially in the morning. That it is not unusual for her to get up nights to clear her throat and that the throat is always rough. *Teeth* show no apical abscesses.

Hearing

R.		*L.*
Shout	W. V.	Shout
7″/15″	R 512^2	5″/15″
	W > +	
—	G.	—
256	L. L.	256

$1024C^2$ faint in A. D.; $2048C^4$ not heard in A. D.; $2048C^4$ faint in A. S. No stapes fixation (Gellé test negative.) Air and bone conduction both lowered.

Diagnosis: Both—Otitis media, catarrhal, chronic, with a low grade pharyngitis, the result of a chronic tonsillar infection. Beginning auditory nerve degeneration. Treatment: Tonsillar exenteration. Topical applications to pharynx.

It is well to emphasize in connection with this case the fact that it is not necessary to have a history of repeated attacks of tonsillitis, or to be able to demonstrate the presence of free pus in the degenerate type of tonsil so often found in patients between 40 and 60 years of age. All cases that are causing toxemia do have, in the experience of the writer, an accompanying low grade pharyngitis with roughness and a tendency to clear the throat on rising and perverted

secretions. In this case the right ear shows the result of an exudative catarrh in the right tympanum. The left membrana tympani is clear, of pearly luster, and the light reflex is present, yet the hearing tests are practically the same.

To conclude we find our etiology to consist in a chronic infection subject to acute exacerbations with varying degrees of virulency, constantly tending to invade contiguous as well as remote structures by continuity or through the lymphatics or blood stream. The tissue reactions in the tympanum, especially about the ossicular joints, seem to be the same as the reaction in other articulations to the irritation of a definite toxine. It is, therefore, obvious that treatment will be useless after secondary atrophy, arthritic changes in the ossicular articulations, or auditory nerve degeneration has taken place. The one serious problem is to establish immunity to a chronic infection. Drainage is essential, but there are secondary foci beyond our reach in many chronic cases. These cases must be treated on broad lines of corrected metabolism, hydrotherapy, out-of-door living, rest, etc., as well as locally, remembering that audition is only one function gone wrong in the symptom complex.

The improvement to be expected cannot be determined by the duration of the deafness or age of the patient, but by a careful examination. Very many cases can be helped, as shown by actual hearing tests. In others the process can be arrested. Many will have relapses on account of secondary foci and poor resistance. Others will show beginning auditory nerve degeneration, but eliminating those cases that have passed beyond our aid, there are still a large number where we can expect good results that will be in proportion to our thoroughness and patience in searching out and draining chronic toxic foci and curing the attending infection. One point that should be emphasized is that very early in the chronic catarrhs you may have beginning auditory nerve degeneration without marked lowering of the bone conduction, as well as changes in the tympanum.

Most of the cases here cited represent the terminal stage of a long-continued hypertrophic or catarrhal process. At the beginning, one ear is more involved than its fellow, but with time the infection extends to the opposite side, until, in many cases, the hearing may be identical. If the advance has been by way of the eustachian tube and tympanum, the hearing for the two sides is more apt to vary than when the toxine acts directly by way of the lymphatics and blood stream. It is obvious that any improvement depends upon early removal of the cause and that any treatment by inflation or other means that does not take into consideration the existing infection is not only a loss of time, but makes the patient ultimately worse, except an occasional use of such treatment in the hypertrophic stage.

DAVID LIVINGSTONE AND THE TRANSMISSION OF DISEASE BY INSECTS.

By E. W. Gudger, Ph.D., Greensboro, N. C.,

State Normal College.

A number of years ago the present writer published in *Science* three historical notes on insect transmission of disease.[1] To these he now desires to add another under the above heading.

Those who are acquainted with David Livingstone's books know in what wealth of natural history notes they abound. He was a capital observer whom nothing seemed to escape, and the world was a great loser when, in 1835, there was lost a volume of his journal delivered for him by the Makololo chief, Sekeletu, to a trader to be transmitted to Mr. Moffat for safekeeping. He states that his regrets were all the greater because "it contained valuable notes on the habits of wild animals." However, a large amount of valuable data, collected both before and after this catastrophe, are contained in his two books: "Missionary Travels and Researches in South Africa; Including a Sketch of Sixteen Years' Residence in the Interior of Africa," etc. New York, Harper and Brothers, 1858; and "Narrative of an Expedition to the Zambesi and Its Tributaries, etc., 1858-1864." This, of which his brother Charles is put down as joint author, although David Livingstone really wrote it, was also published in New York by the Harpers under date 1866. In addition to these, his journals from 1865 to his death in 1873 were collected, edited, and published in 1874 by his friend, Horace Waller. Livingstone's thirty-three years in Africa (from 1840-1873) resulted in a knowledge on his part of the southern part of that continent

and of its natural history, which was not equalled by any man of his time.

The pests of Africa are many and vicious, but more vexatious and more dangerous than the attacks of lion and crocodile were those of the tsetse fly and the mosquito. The one brought about the death of his riding and pack and food animals, the other of his servants, his companions, and finally of himself. He clearly understood that the bite of the former conveyed infection, and the strong inference is that he believed this to be true of the latter also. And it has seemed to me that in this day, when the attention of the whole medical and scientific world is so riveted upon the control of those two insects and the diseases they spread, that a brief statement of David Livingstone's researches and conclusions will be of interest and value.

Throughout the whole of Livingstone's books runs the story of the dangers and deaths resulting from the bite of the tsetse fly. However, from his landing at Cape Town in 1840, it was ten years before he worked his way far enough north to come into the domain of the fatal tsetse.

In 1850 Livingstone journeyed from Kolobeng to the river Mahabe, and after crossing a bad stretch of desert he says, on page 93 of his "Travels and Researches," "The cattle, in rushing along to the water of the Mahabe, probably crossed a small patch of trees containing tsetse, an insect which was shortly to become a perfect pest to us."

A few pages further on (pp. 94-97) in the same chapter, occurs the following careful description of the fly and of the effects of its bite as noted in 1850:

"A few remarks on the tsetse, or *Glossina morsitans*, may here be appropriate. It is not much larger than the common house-fly, and is nearly of the same brown color as the common honey-bee; the after part of the body has three or four yellow bars across it; the wings project beyond this part considerably, and it is remarkably alert, avoiding most dexterously all attempts to capture it with the hand at common temperatures; in the cool of the mornings and evenings it is less agile. Its peculiar buzz when once heard can never be forgotten by the traveler whose means of locomotion are domestic animals; for it is well known that the bite of this poisonous insect is certain death to the ox, horse, and dog. In this journey, though we were not aware of any great number having at any time lighted on our cattle, we lost forty-three fine oxen by its bite. We watched the animals carefully, and believe that not a score of flies were ever upon them.

"A most remarkable feature of the bite of the tsetse is its perfect harmlessness in man and wild animals, and even calves, so long as they continue to suck the cows. We never experienced the slightest injury from them ourselves, personally, although we lived two months in their habitat, which was, in this case, as sharply defined as in many others, for the south bank of the Chobe was infested by them, and the northern bank, where our cattle were placed, only fifty yards distant, contained not a single specimen. This was the more remarkable, as we often saw natives carrying over raw meat to the opposite bank with many tsetse settled upon it.

"The poison does not seem to be injected by a sting, or by ova placed beneath the skin; for, when one is allowed to feed freely on the hand, it is seen to insert the middle prong of three portions, into which the proboscis divides, somewhat deeper into the true skin; it then draws it out a little way, and it assumes a crimson color as the mandibles come into brisk operation. The previously shrunken belly swells out, and, if left undisturbed, the fly quietly departs when it is full. A slight itching irritation follows, but not more than in the bite of a mosquito. In the ox the same bite produces no more immediate effects than in man. It does not startle him as the gad-fly does; but a few days afterward the following symptoms supervene: the eyes and nose begin to run, the coat stares as if the animal were cold, a swelling appears under the jaw, and sometimes at the navel; and, though the animal continues to graze, emaciation commences, accompanied with a peculiar flaccidity of the muscles, and this proceeds unchecked until, perhaps months afterward, purging comes on, and the animal, no longer able to graze, perishes in a state of extreme exhaustion. Those which are in good condition often perish soon after the bite is inflicted, with staggering and blindness, as if the brain were affected by it. Sudden changes of temperature produced by falls of rain seem to hasten the progress of the complaint; but, in general, the emaciation

goes on uninterruptedly for months, and, do what we will, the poor animals perish miserably.

"When opened, the cellular tissue on the surface of the body beneath the skin is seen to be injected with air, as if a quantity of soap-bubbles were scattered over it, or a dishonest, awkward butcher had been trying to make it look fat. The fat is of a greenish-yellow color and of an oily consistence. All the muscles are flabby, and the heart often so soft that the fingers may be made to meet through it. The lungs and liver partake of the disease. The stomach and bowels are pale and empty, and the gall-bladder is distended with bile.

"These symptoms seem to indicate what is probably the case, a poison in the blood, the germ of which enters when the proboscis is inserted to draw blood. The poison-germ, contained in a bulb at the root of the proboscis, seems capable, although very minute in quantity, of reproducing itself, for the blood after death by tsetse is very small in quantity and scarcely stains the hands in dissection.

"The mule, ass, and goat enjoy the same immunity from the tsetse as man and the game. Many large tribes on the Zambesi can keep no domestic animals except the goat, in consequence of the scourge existing in their country. Our children were frequently bitten, yet suffered no harm; and we saw around us numbers of zebras, buffaloes, pigs, pallahs, and other antelopes, feeding quietly in the very habitat of the tsetse, yet as undisturbed by its bite as oxen are when they first receive the fatal poison. There is not so much difference in the natures of the horse and zebra, the buffalo and ox, the sheep and antelope, as to afford any satisfactory explanation of the phenomenon. Is a man not as much a domesticated animal as a dog? The curious feature in the case, that dogs perish though fed on milk, whereas the calves escape so long as they continue sucking, made us imagine that the mischief might be produced by some plant in the locality, and not by tsetse; but Major Vardon, of the Madras Army, settled that point by riding a horse up to a small hill infested by the insect without allowing him time to graze, and, though he only remained long enough to take a view of the country and catch some specimens of tsetse on the animal, in ten days afterward the horse was dead.

"The well-known disgust which the tsetse shows to animal excreta, as exhibited when a village is placed in its habitat, has been observed and turned to account by some of the doctors. They mix droppings of animals, human milk, and some medicines together and smear the animals that are about to pass through a tsetse district; but this, though it proves a preventive at the time, is not permanent. There is no cure yet known for the disease. A careless herdsman allowing a large number of cattle to wander into a tsetse district loses all except the calves; and Sebituane once lost nearly the entire cattle of his tribe, very many thousands, by unwittingly coming under its influence. Inoculation does not insure immunity, as animals which have been slightly bitten in one year may perish by a greater number of bites in the next; but it is probable that with the increase of guns the game will perish, as has happened in the South, and the tsetse, deprived of food, may become extinct simultaneously with the larger animals."

As to the care with which he investigated the means by which the poison was transmitted, we may read on page 320 of Volume I of his "Last Journals": "In examining a tsetse fly very carefully I see that it has a receptacle at the root of the piercer, which is of black or dark red color; and when it is squeezed, a clear fluid is pressed out at its point." Of this apparatus and of the fly itself, Livingstone gives figures in his "Travels and Researches," on page 612.

It is plain that Livingstone suspected the large mammals of being alternative hosts of the germs of tsetse fly poisoning, for on page 282 of the "Travels and Researches" (1858) he says that the left bank of the Leeba river "has tsetse and elephant." Then he adds, "I suspect the fly has some connection with this animal, and the Portuguese in the district of Tete think so, too, for they call it *Musca da elephant* (elephant fly)." Again, in his "Expedition to the Zambesi" (1866) he says on page 47: "From the spoor of buffaloes and elephants it appears that these animals [occur] in considerable numbers, and—we have often observed the association—the tsetse fly is common." Again and again the tsetse fly and big game are incidentally noted as occurring in the same districts, but on page 447, we have the distinct statement, "The destruction of all game by the advance of

civilization is the only chance of getting rid of the tsetse."

The tsetse fly disease, now designated by its native African name *Nagana*, is known to be caused by a minute motile protozoan parasite, *Trypanosoma brucei*. Bruce, whose original paper I have not seen ("Preliminary Report on the Tsetse fly Disease or Nagana in Zululand." 1896), discovered the parasite in 1894, at least 40 years after Livingstone wrote the account excerpted above, and at or about the same time showed that the parasites were transmitted by tsetse flies (*Glossina*).

In view of what Livingstone wrote more than half a century ago, it will be of interest to quote from Prof. E. O. Jordan's "General Bacteriology" (fourth edition, 1904) the following paragraph on the tsetse fly disease of horses and cattle in South Africa:

"Certain tsetse flies, namely *Glossina morsitans*, and others of this genus, seem to be the only insects whose bite is able to convey the *nagano* infection, since ordinary biting insects that have fed on infected animals are not able to communicate the disease to healthy subjects. It is possible that the infection is sometimes transferred mechanically by the biting tsetse-fly, but there is also evidence that a cyclical development of the parasite occurs in the insect's body. After the first few hours after biting, when mechanical transference is possible, the fly is not infective until about the eighteenth day. It may remain infective for at least twelve weeks and probably much longer. There is reason to believe that the parasite exists in the blood of big game in parts of Africa, and that the fly becomes infected from these animals and transmits the disease to horses and cattle. As Bruce expresses it, the reservoir of the disease is found in the wild animals. It is said that the extermination of the larger wild herbivora in parts of southern Africa has rendered the tsetse-fly disease relatively uncommon."

Our admiration for Livingstone's careful description of the symptoms of tsetse-fly poisoning will be enhanced when we read the following excerpt from Park and Williams "Pathogenic Organisms" (fifth edition, 1914) on the symptoms of trypanosomiasis in animals.

"After an incubation period which varies in the same class of animals and in those of different species, as well as with the conditions of infection, and during which the animal remains perfectly well, the first symptom to be noticed is a rise of temperature. For some days a remittent or intermittent fever may be the only evidence of illness. Later on the animal becomes somewhat stupid; watery, catarrhal discharges from the nose and eyes appear; the hair becomes roughened and falls out in places and the peripheral lymph nodes are enlarged. Finally the catarrhal discharges become more profuse and the secretions more tenacious and even purulent; marked emaciation develops; edema of the genitals and dependent parts appears; a staggering gait, particularly of the hind parts, comes on, in some forms passing on to paralysis. This is followed by death. There may be various ecchymoses and skin eruptions. Parasites are found in the blood more or less regularly after the appearance of the fever. They are often more numerous in the enlarged lymph nodes and in the bloody edematous areas than in the general circulation.

"The autopsy shows general anemia, an enlarged spleen with hypertrophied follicles, more or less gelatinous material in the adipose tissue, the liver slightly enlarged, a small amount of serous exudate in serous cavities, edematous condition, and small hemorrhages in various tissues. There is a relative increase of the mononuclears in the blood.

"The duration varies from a few days to many months. The prognosis seems to be influenced to a certain extent by the species of host. It is probably always fatal in horses. Some cattle recover. The cause of death is possibly a toxic substance, though no definite toxin has been isolated. Mechanical disturbances (emboli, etc.) also probably play a part in producing death."

Although Livingstone traversed Africa from ocean to ocean, from Quilimane to St. Paul de Loanda and return, he makes no mention of the present day terrible sleeping sickness due to *Trypanosoma gambiense*, transmitted by another tsetse-fly, *Glossina palpalis*. He frequently speaks of the tsetse-fly biting himself and his men but never with any untoward effects. It would be an interesting bit of research to trace the history of the sleeping sickness disease.

It might be expected that Livingstone from his large experience would have associated ma-

laria and mosquitoes, but here his ideas were far less definite than as to the tsetse-fly and its disease. However, we find some few references. He distinctly avows that the bad air of swamps does not cause malaria, although he recognizes that the leeward side of swamps, in a region of winds steadily prevailing from one point of the compass, is much more malarious than the windward side. However, in his "Expedition to the Zambesi" (1866), he distinctly says (page 389), in speaking of a small lake near Nyassa, "Myriads of mosquitoes showed, as probably they always do, the presence of malaria."

REFERENCE.

1 Gudger, E. W.: An Early Note on Flies as Transmitters of Disease. *Science*, 1910, N. S. xxxi, pp. 31, 32.
A Second Early Note on the Transmission of Yaws by Flies. *Science*, 1910, N. S. xxxii, pp. 632, 633.
Further Early Notes on the Transmission of the Disease Called Yaws. *Science*, 1911, N. S. xxxiii, pp. 427, 428.

PHYSICAL FITNESS FOR OVERSEAS SERVICE.

By Lieut. John F. Martin, M.C., Garden City, L. I., N.Y.,

Air Service Depot.

The examination of officers and enlisted personnel has been an established custom at the Air Service Depot, Garden City, L. I., N. Y., since it was first established as an embarkation station for troops of the aeronautical service. While one would suppose that troops leaving training camps for overseas service would be physically fit as a unit, circumstances arise by which incapacitated at times filter through to this, as well as other embarkation camps.

The responsibility for detecting the unfit rests upon the surgeons detailed for that work, and in order to be successful, they should be proficient, well-trained, and acutely observing. It would be ludicrous for a surgeon to say that a man with a simple goitre, otherwise in good physical condition, was unfit for overseas service; also to allow malingering to be imposed.

This paper deals with conditions found to be of a surgical nature, and found during daily inspection of squadron and detachment personnel by the surgeons in charge, then passed on to a board of officers finally to determine as to the fitness of the men. Good results have shown, in that but one case of frank disease was turned back from the port of embarkation out of a group of about forty thousand sent away; and such favorable results can be obtained only through the unifying factors of system.

When troops arrive at this depot, they are immediately inspected by the epidemiologist, after a certification as to infectious and venereal diseases has been made by the surgeon in charge. All infectious diseases are immediately sent to hospital, and isolated in respective wards; venereal diseases are sent to the genito-urinary wards. Physical defects are noted—whether medical or surgical, and are listed for further reference. Such tabulation results in no confusion or difficulty in eliminating the physically unfit for overseas service.

When a man is found by the board of examiners to be unfit for overseas service, a distinction is made as to whether he is temporarily or permanently so; if temporarily so, he is sent to the hospital for medical or surgical treatment, as the case may be; if he is permanently so, he is finally transferred to the casual ineligibles (ineligible for overseas service.) Those discharged from the hospital after receiving medical or surgical treatment, are transferred to the casuals convalescent, with a recommendation as to whether they are to be turned over to the casual eligibles or casual ineligibles. Men in the casual ineligibles are brought before a board of officers to determine whether they are fit for limited domestic service or unfit for any form of military service; in the former instance, they are transferred to the development battalion.

Physical unfits are of three classes: (a) those temporarily unfit; (b) those partly unfit for military service; (c) those wholly unfit for any form of service. Class A consists of correctable medical and surgical incapacities, such as, second degree flat feet, hernia, chronic appendicitis, etc.; Class B includes arthropathies (ankylosis, short limbs, chronic arthritis), contractures, and similar incapacities; Class C furnishes the mental defectives, acute and chronic tuberculosis, chronic cardiacs (poorly compensated), nephritics, and other defects, rendering the possessor unable to perform even limited service.

Among seven thousand and three hundred enlisted personnel examined, the most frequent surgical condition found was chronic hypertrophic tonsillitis, being operable in one hundred and seventy-six cases; varicocele, second and

third degree, was found present in one hundred and sixteen cases; and operated on only when symptoms were distinctly manifest; operable hernia was discovered in sixty-six instances, all but one of which was of inguinal type; hemorrhoids were found operable in twenty-four cases; undescended testes were discovered nine times; hydrocele five. One hundred and ninety-nine cases of flat feet were discovered, seventy-three being of second degree; cases of third degree flat were found in most instances unfit for full military service.

The examination of officers for overseas service is done at this hospital by a board of officers appointed for the purpose. While most of the officers coming to this depot have been in service long enough to have been examined many times, yet now and then an officer is disqualified for service, temporarily or permanently, on account of some physical defect.

All must present records of having received complete typhoid and paratyphoid immunization, also vaccination against smallpox; and recently the entire command—officers and enlisted men—have been vaccinated against influenza and pneumonia infection, the same being recorded on certificate of fitness for overseas service. Among eight hundred and thirty-six officers examined, hernia was found to be the most common surgical condition and found operable in nine instances; hydrocele was found five times; one rectal fistula; one nephrolithiasis; one single kidney (nephrectomy); and one chronic appendicitis. The officers having the single kidney and nephrolithiasis were found permanently unfit for overseas service, but fit for domestic military service.

By correcting incapacities requiring surgical tervention, officers and enlisted men were made better fit to fight and less likely to become hospital patients overseas. And there is no doubt that chronically hypertrophied tonsils, subject to acute exacerbations, are better removed than allowed to remain, for one such case might not only be a hospital charge a good percentage of the time, but serve as a carrier of acute infection, such as Vincent's angina, cerebro-spinal meningitis, diphtheria, scarlet fever, measles, etc. Removing sources of infection among the enlisted personnel of the army certainly should include chronically infected tonsils among the most frequent causes of disease dissemination.

Marked decrease in the number of cases of acute tonsillitis was noticed among squadron personnel, not considering those that had their tonsils removed other than as potential carriers. It was observed that men most subject to acute attacks of tonsillitis were those that contracted scarlet fever and diphtheria as a rule. One squadron having had an outbreak of diphtheria showed five carriers of the diphtheria bacillus, and when they were removed and isolated there were no new cases; the three cases of diphtheria might have had their origin from one of the carriers. In the same squadron there were eleven cases of chronically enlarged tonsils, among which three cases of scarlet fever developed; removal of the tonsils of the remaining eight not only cured their tonsillitis, but lessened the danger of disease dissemination to the rest of the command.

Correcting surgical incapacities, apt to render the possessor a hospital charge overseas, is a procedure not to be neglected at military camps, for efficiency reasons; and, conversely, one should not operate on minor physical incapacities that are better left alone.

Forming a huge army from the nation's manpower rendered it necessary not only to train the men in the art of warfare, but also made it obligatory upon the medical department of the army to correct physical faults when possible, so as to make the possessor fit to fight; and the great benefit derived from conservative corrective surgery will be more apparent after the war in the absence of such minor incapacities in those that possessed them.

OBSERVATIONS IN THE PNEUMOTHORAX TREATMENT OF PULMONARY TUBERCULOSIS.

By HERBERT F. GAMMONS, M.D., CARLSBAD, TEXAS.

THE remarkable immediate benefits resulting from the use of pneumothorax are so encouraging to both patient and physician, that undoubtedly the main object of the treatment is not obtained in many instances.

Our good judgment is often overbalanced by our enthusiasm with the result that we go to the extremes when we consider these immediate benefits and fail to consider the ultimate results.

Such is the case with many of the treatments for pulmonary tuberculosis, especially the tuberculin and rest treatments. There are some cases of pulmonary tuberculosis which are benefited by tuberculin treatment and by prolonged rest. There are other cases in which tuberculin and prolonged rest are not indicated. To treat a case of pulmonary tuberculosis with any special treatment, regardless of indications or contraindications, is to mistreat the case.

The going to extremes by physicians in the treatment of pulmonary tuberculosis is oftentimes the result of reading glowing accounts of successes resulting from such a special treatment.

In treating pulmonary tuberculosis we fail to take into consideration many factors which enter into the cases in question. We fail to consider that each case is a case unto itself as regards its resistance and the virulence of the infecting organisms.

Furthermore, we fail to consider the probable future life of the patient, his opportunities for taking treatment for an extended length of time, and his ability to coöperate with the physician in all details of both special treatment and the regular sanatorium or hygienic treatment.

When we consider the advisability of treating tuberculous patients by artificial pneumothorax, excepting hemorrhage and last resort cases, we must attempt to determine what the future of the case in question will be. That is to say, in a sanatorium where patients have a limited length of time in which to take treatment, we must ascertain whether or not the patient will continue the treatment for the necessary length of time to get anatomic healing.

Also, we must decide if a patient, after leaving a sanatorium, will be able to continue treatment under the supervision of a physician competent to determine, at the earliest possible moment, increased activity in the opposite lung.

At the same time the age of the patient and the presence of disease of other organs must be taken into consideration. The young and old patients are usually not good subjects for induced pneumothorax treatment.

Very nervous patients should also be excluded unless the nervousness is of toxic origin. Patients with marked cardio-renal vascular disease prove to be poor risks.

Even after we have excluded all of the above considerations we must still take into consideration the complications of pneumothorax treatment, such as embolism, pleural shock, pleural effusion and hemorrhage.

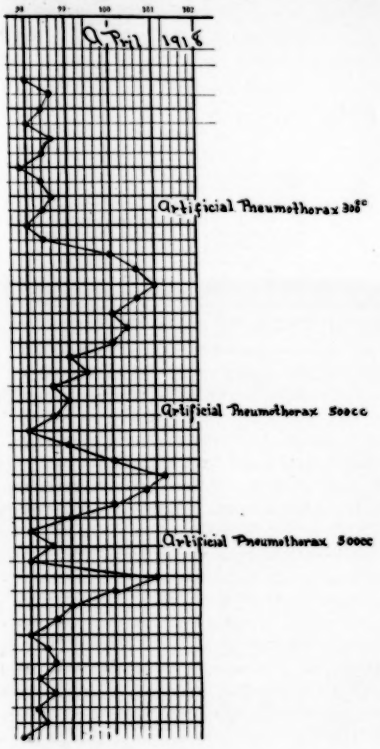

FIG. 1.

Often we will pick out a case which promises results, but after pneumothorax is administered we get symptoms of "walling in" of discharging cavities. Such is the case in Figure 1. This patient gave promise of being a splendid case for the pneumothorax treatment, but following instillation of air, the temperature was elevated, cough and sputum stopped, and general poisoning was marked. This case apparently had a cavity which was normally discharging freely, but following partial collapse, the opening to the cavity was closed with a result that the broken down tissue and pus were absorbed. After the air was absorbed and the patient began to expectorate, all signs disappeared until

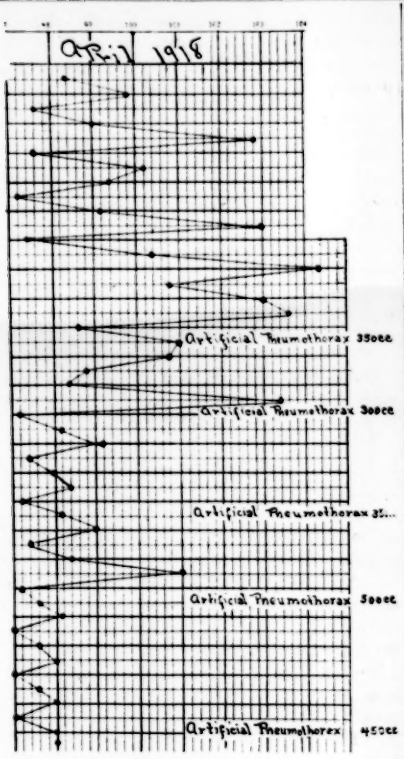

FIG. 2.

another treatment, when there was a repetition of the phenomenon.

On the other hand, Figure 2 shows the drop in temperature following pneumothorax in a patient with tuberculosis pneumonia whom we did not expect to live.

The treatment of left-sided cases is not as hopeful as that of the right-sided. In most every left-sided case I have had marked displacement of the heart, and in a great many instances vomiting was very frequent, being apparently due to the pressure on the stomach. In a few instances left-side cases have severe headache.

I have found that pleural effusion occurs in about twenty per cent. of the cases treated by artificial pneumothorax. In many instances this effusion becomes purulent.

In a previous paper[*] I described an improved method of refilling cases treated by artificial pneumothorax. This consisted of the use of a ten gauge one and one-half inch steel needle through which the solution was passed to anesthetize the tissues in the intercostal space. After passing the needle through the tissues and gradually infiltrating them with the cocaine, the pleural space was reached and I did not withdraw the needle, but I removed the syringe and then attached the rubber tube, from the pneumothorax apparatus, to the needle in position. In this way I limited the number of entrances to the pleural cavity to one, thereby decreasing shock, pain, hemorrhage, and infection.

For some time I have been using the same method on the initial puncture cases and it is much more agreeable than the old method. While using the older method I accidentally punctured an artery, which was apparently located in a caseous area, with resulting death from internal and external hemorrhage. This occurred in a hopelessly far advanced case, but the shock to me was as severe as if it had been in a very hopeful case. I feel this accident would not have occurred had I used the small needle herein described.

It is not the purpose of this paper to go into detailed statistics, which would be meaningless to those not familiar with the cases in question, and I will mention that the material which formed the basis for my observations consisted of ninety-eight patients, in whom over two thousand entrances into the chest were made. Sixty per cent. of these cases were left-sided cases. Many have left my supervision and I do not know the present condition of them. The treatment that they have been taking would influence their present condition, naturally.

None of these cases have been absolutely cured. Many have been greatly benefited. A few are probably worse off than they would have been without the treatment, on account of the pleural effusion which has become infected. About thirty per cent. have died, although this does not mean that they were not properly selected, as a few of these cases who died would not care for themselves.

My observations have led me to the following conclusions:

First—Consider the possibility of using arti-

[*] Improved Method of Re-filling Cases Treated by Artificial Pneumothorax. *Jour. A. M. A.*, March 23, 1918, p. 843.

ficial pneumothorax in every case of pulmonary tuberculosis.

Second—Use every hygienic method first and then if the chance of improvement following pneumothorax appears good, use it.

Third—Artificial pneumothorax should not be used as a last resort, as a rule.

Fourth—After the pneumothorax is started and there are good prospects of a complete collapse, the treatments should be administered often. It is best to give 300 cc. at the initial attempt and then it should be given every two or three days until the lung is collapsed. The amount to be given at each operation being dependent upon the manometric reading.

Fifth—If, after a few attempts, numerous adhesions are present preventing a complete collapse, the case should be given up as a failure.

Sixth—The ulcerative case offers the best results. Unilateral cases without much sputum and fever should not be treated with pneumothorax, even though their entire lung is full of large, moist râles. The collapse would in these cases tend to tear up the fibrosed areas.

FAT EMBOLISM SHOCK IS NOT EXPLAINED BY EMBOLISM OF THE LUNGS.

By W. T. Porter, M.D., Boston.

[From the Laboratory of Comparative Physiology in the Harvard Medical School.]

In February, 1917, I demonstrated that the fall of arterial pressure and the other symptoms of wound shock can be produced by the injection of neutral olive oil into the external jugular vein.[1]

In May and June of that year, I confirmed, by observations at the Massif de Moronvillers and the Chemin des Dames, the statement made to me at the Carrel Hospital in Compiègne, namely, that shock is most frequent after shell fracture of the femur and after multiple wounds through the subcutaneous fat[2]—conditions in which much fat enters the blood, with resultant infraction of the lungs, the brain, and other organs.

These facts led me to declare that fat embolism is the most frequent cause of wound shock upon the battlefield.

Shortly thereafter, several physiologists and many surgeons denied that fat embolism could properly be said to be a cause of wound shock. My results were to be explained, they contended, by embolism of the lungs. This contention was completely overthrown in July, 1918, when shock was produced by the infarction of the vasomotor region through the injection of a minute quantity of oil (0.1 c.c. per kilo) into the central end of the vertebral artery. Vessels of the vasomotor region were seen to be plugged with oil in sections stained with sharlach R.[3]

II.

It has seemed worth while to prove by two other methods that fat embolism shock cannot be explained by embolism of the lungs.

The first of these methods produces shock by injections through the central end of the carotid artery. This may excite surprise. Not long ago an experimenter of repute strengthened, as he thought, the case for embolism of the lungs by failing to produce shock by the injection of oil into the central end of the carotid artery. His failure to lower the blood pressure by embolism of the brain seemed to him to leave the field clear for embolism of the lungs.

The unsuccessful experimenter could hardly have forgotten that the vasomotor region is supplied by the basilar artery and not by the carotid. Probably he reasoned that the circle of Willis is an open road through which oil injected into the central end of the carotid would easily reach the nerve centers in the bulb. If he is of that mind, he has fallen into the pit which the anatomists have dug. That the circle of Willis is a generous anastomosis cannot be disputed. But the direction taken by a drop of oil entering this circle will not finally depend on the anatomical relations. The vascular pressure is the warder of these gates. The circle of Willis is a balanced pressure ring, in which the pressure from the basilar area contends with that from each carotid area. So clear is this, that experiments would seem superfluous, were it not for the peril inherent in a priori reasoning. But the experiments are not less clear.

If 1 c.c. of neutral olive oil is injected into the central end of one carotid in a cat weighing 4 or 5 kilos (both vertebrals and the other carotid artery being free), shock rarely follows. Obviously, the oil enters parts of the brain anterior to the bulb and does not plug the vessels

in the vasomotor region. If, on the contrary, a clamp be placed temporarily (4 minutes) on one carotid while the oil is passing through the other carotid, shock usually does follow.

Like the injection of oil into the vertebral artery, this experiment is doubly destructive against the hypothesis that shock is due to embolism of the lungs; for it leaves the lungs free and produces shock by the embolism of a particular region of the brain.

III.

The second of the two new methods compares two procedures, A and B, in each of which 0.5 c.c. of neutral olive oil per kilo of body weight is injected into the external jugular vein of cats. The rate of inflow is about 1 c.c. in 15 seconds.

In series A, both carotid arteries were closed but both vertebral arteries were free. Shock usually took place.

In series B, both carotid arteries were free but both vertebral arteries were closed. Shock seldom took place.

Yet the lungs were infarcted equally in both series. In fact, the method in series A was identical with that in series B, except that in A the fat passing through the lungs into the general circulation could reach the brain through the vertebral arteries, whereas in B it could enter the brain only through the carotid arteries. Obviously, the state of the lungs being identical in both series, the difference in the result of the two series must be due to a factor outside the lungs. The experiments point clearly to embolism of the vasomotor region as the cause of the shock observed in series A, in which the vertebral arteries were open.

IV.

The three methods detailed above lead to the same conclusion.[4] Fat embolism shock is not explained by embolism of the lungs.

REFERENCES.

[1] Boston Medical and Surgical Journal, Feb. 15, 1917, clxxvi, p. 248.

[3] Boston Medical and Surgical Journal, Sept. 6, 1917, clxxvii, p. 326.

[2] Boston Medical and Surgical Journal, Aug. 22, 1918, clxxix, p. 273.

[4] Following is a complete list of the papers in this series: Boston Medical and Surgical Journal, 1916, Vol. clxxv, pp. 854-858; 1917, Vol. clxxvi, p. 248; *Ibid.*, p. 699; 1917, Vol. clxxvii, pp. 326-328; 1918, Vol. clxxviii, pp. 657-660; Comptes rendus de l'Académie des Sciences, Paris, Oct. 30, 1916, t. 163, p. 492; *Ibid.*, July 23, 1917, t. 165, p. 164; Proceedings of The Institute of Medicine of Chicago, 1918, Vol. ii, pp. 24-29; Boston Medical and Surgical Journal, 1918, Vol. clxxix, pp. 273, 274.

Society Report.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting of Wednesday, January 1, 1919, at 8 P.M.

The President, Colonel Richard H. Harte, in the Chair.

RECONSTRUCTION PROGRAM OF THE PUBLIC HEALTH SERVICE.

Senior Surgeon Charles E. Banks, U.S.P.H.S., Washington, D. C.: Whoever writes the history of the present war will find among the most significant of its developments the achievements of our profession in the field of preventive medicine; in the huge army of nearly five millions mobilized in the United States there have been less than 200 cases of typhoid fever. One may safely say that as a result of the remarkable work in sanitation and preventive medicine carried on by the allied medical organizations, hundreds and thousands of fighting men were preserved from ignominious death from preventable disease. That which has been accomplished in the military zone under the most unfavorable environments can be duplicated in civil life under less complicated conditions. The men whose lives were saved by the application of modern sanitary methods and the principles of preventive medicine understand the necessity for the application of sound sanitary principles to the ordinary daily walks of life. They will not only practice these principles themselves, but demand that those in authority in health matters shall apply them in the interest of the public health. The superficial work which has characterized a good deal of our health activities in the past will be tolerated no longer. The medical profession must be prepared for a reconstruction of methods in connection with the public health. The saner logic of preventive medicine will supersede the ancient order of attempting to cure disease that has become established. The leadership in this period of reconstruction will naturally devolve upon the United States Public Health Service. The program with which this natural organization intends to meet the emergencies of the situation is comprehensive and far-reaching, and for its full success is dependent upon the coöperation of organized medicine. It meets urgent national needs by outlining health activities which are

practicable and which will yield the maximum result in protecting national health and will diminish the toll of thousands of lives sacrificed by preventable disease and unsanitary conditions. The program comprises exhaustive work under industrial hygiene, rural hygiene, prevention of the diseases of infancy and childhood, water supplies (National development of safe water supplies), milk supplies (National development of safe milk supplies), sewage disposal, malaria (National development of measures for control), venereal diseases, tuberculosis, railway sanitation, municipal sanitation, health standards, health education, collection of morbidity reports, organization, and training for duty in emergency of the Reserve of the Public Health Service.

If this great world war found us unprepared, let not the same be said of us in this period of reconstruction.

Dr. J. M. Anders: Public health activities have suffered greatly during the war, and this is perhaps especially true of civilian tuberculosis activities for the reason that many able workers were in the Army and Navy. Perhaps the most important of the lessons we have learned in the recent world war is the fact that the individual efficiency of the men on the firing line is the foremost factor in modern warfare. The large percentage of rejections, by the local draft boards, of the men called to the colors directs especial attention to the problem of physical education in this country during this reconstruction period. Every individual, it seems to me, should be taught how to promote his or her health, and I believe this could be best accomplished in connection with our public and secondary schools as well as in the colleges and universities. While the idea of universal military training should be encouraged, the scope of the plan should be, and the one presented tonight is, sufficiently comprehensive to include the entire American race. I believe that if in the immediate future sufficient attention were devoted to the matter of physical education, many of the details in the program just outlined by Colonel Banks would in due course be found to be unnecessary. All are probably aware of the fact that in England there has recently been formed a ministry of health which will combine and coördinate all the public health activities under one head. Such a reorganization of the public health activities in this country would be a consummation devoutly to be wished for, and it would certainly facilitate that which Colonel Banks has emphasized, namely: the necessity of sympathetic coöperation among all allied agencies having to do with public health work. Moreover, I feel strongly that there could be no more propitious time than the present to set in motion efforts to this end.

Book Review.

The Doctor in War. By Woods Hutchinson, M.D. Boston and New York: Houghton, Mifflin Company. The Riverside Press, Cambridge. 1918.

From first-hand information gathered during a year's visit with the medical and sanitary service on the western front, through the courtesy of the allied governments, Dr. Woods Hutchinson has proved to us in his latest book that "the doctor has made this world-struggle probably one of the least deadly ever fought in proportion to the numbers engaged."

Aside from its very great interest to the medical profession as an authoritative statement of the marvelous progress of medical science in the war, this book is also an inspiration to the general reader. Optimism and cheer are the messages which every chapter contains; and though no effort has been made to lessen the actual facts, the author shows that the number of fatalities is surprisingly fewer than is generally supposed. This interesting account of Dr. Hutchinson's observations is divided into twenty-five chapters and is profusely illustrated from official photographs which aid in clarifying many of the descriptions. Within the pages of this volume is a vivid, adequate account of the contribution of the medical profession to the cause of humanity. In a non-technical manner and one which will appeal to every American as a story of historical interest, the author has presented his observations of the dangers of war; repairing the wreckage of war; the superb health of the armies; the land of the happy warrior and the cheerful wounded; the risks of a Red Cross nurse; a day in a field hospital; treating a million men and the new diseases in war. It is a book which should be read by everyone, regardless of any direct interest which he may have in medicine.

THE BOSTON
Medical and Surgical Journal
Established in 1812

An independently owned Journal of Medicine and Surgery published weekly under the direction of the Editors and an Advisory Committee, by the BOSTON MEDICAL AND SURGICAL JOURNAL SOCIETY, INC.

THURSDAY, MAY 8, 1919

SUBSCRIPTION TERMS: *$5.00 per year, in advance, postage paid for the United States. $6.56 per year for all foreign countries belonging to the Postal Union.*

An editor will be in the editorial office daily, except Sunday, from twelve to one p.m.

Papers for publication, and all other communications for the Editorial Department, should be addressed to the Editor, 126 Massachusetts Ave., Boston. Notices and other material for the editorial pages must be received not later than noon on the Saturday preceding the date of publication. Orders for reprints must be returned in writing to the printer with the galley proof of papers. The Journal will furnish free to the author, upon his written request, one hundred eight-page reprints without covers, or the equivalent in pages in the case of articles of greater length.

The Journal does not hold itself responsible for any opinions or sentiments advanced by any contributor in any article published in its columns.

All letters containing business communications, or referring to the publication, subscription, or advertising department of the Journal, should be addressed to

ERNEST GREGORY, *Manager*
126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

LETHARGIC ENCEPHALITIS.

A REPRINT describing the disease known as "lethargic encephalitis" has been issued recently by the Public Health Service. This disease has been made notifiable in England, and it is desirable that it should be determined to what extent it prevails in this country. At a meeting of the Vienna Psychiatric Society in 1917, a group of cases which had occurred in epidemic form were described, under the name "lethargic encephalitis," by Von Economo. The disease was discussed also at a meeting of the Paris Academy of Medicine, and evidence was brought forward which indicated its prevalence in Germany in the late seventeenth and early eighteenth centuries, in Upper Italy and Hungary in 1890, in Europe and the United States in 1895, and in Vienna in the winter of 1916-1917. There was an epidemic in England in 1918, and clinical and pathological investigations have been undertaken by the Government and by the Medical Research Committee.

The data collected in the course of these investigations have been published, and indicate that the disease is an acute affection due to a specific virus, probably finding entrance through the nasopharynx, and having a special affinity for the nervous system. Pathologically, lethargic encephalitis belongs to the class of polioencephalitic diseases which are inflammatory in nature. It has been noted that clinically the disease is a general infectious disease characterized by manifestations originating in the central nervous system, of which the most frequent and characteristic are progressive lethargy or stupor and lesion in or about the nuclei of the third pair of cranial nerves. In most cases, a prodromal period may be recognized. Usually the first symptom is simple catarrhal conjunctivitis and sometimes tonsillitis, sore throat, and bronchial catarrh; but the salient system in most cases has been progressive lethargy. There is great muscular weakness manifested, delirium is not uncommon, and irregular nonrhythmic spontaneous movements of the face, trunk, and limbs are not infrequent. Ophthalmoplegia is perhaps the most common localizing sign. Seven types of cases have been recognized: (a) A clinical affection of the third pair of nerves; (b) affections of the brain stem and bulb; (c) affections of the long tracts; (d) the ataxic type; (e) affections of the cerebral cortex; (f) cases with evidence of spinal cord involvement, and (g) the polyneuritic type in which affection of the peripheral nerves is suspected.

The most common diagnostic error is to attribute the condition to tuberculous meningitis. Lethargic encephalitis has a very definite clinical syndrome, characterized by progressive stupor or coma, alternating delirium, headache, giddiness, asthenia, mental and emotional changes, and, in the majority of cases, by paralysis of the third pair of cranial nerves. No specific method of treatment has as yet been devised. In many cases, transient or permanent relief has been obtained by the withdrawal of cerebrospinal fluid by lumbar puncture. It has been observed that convalescence requires at least six months after the beginning of the illness.

The publication of these reprints is of great value in calling to the attention of the profession the salient facts concerning a disease about which very little is known.

INVESTIGATION OF SICKNESS EXPECTANCY.

It is of the greatest possible interest to read the report of an extensive investigation of sickness expectancy conducted by the United States Health Service under the direction of Assistant Surgeon General B. S. Warren and Associate Statistician Edgar Sydenstricker and published in public health reports. These investigators collected detailed information from over 400 sick-benefit associations, covering, in the majority of instances, an experience of three years. This information included the records of disability due to sickness and non-industrial accidents for which cash benefits were paid under the various regulations of the associations, and gives a fair insight into the sickness experience of over three-quarters of a million wage-earners engaged in many different industries and occupations.

Inasmuch as most of the plans for State health insurance provide that no benefits be paid for the first three days of illness, or for illness of less than four days' duration, special study was made of the experience of 22 sick benefit associations which enforce a similar limitation. These represented about 150,000 members, for a great majority of whom three years' experience (1914, 1915, and 1916) was available. This is equivalent to 465,714 years of exposure. With a total number of slightly over four million days of sickness, this group showed 8.6 days of sickness per member per year.

Attention is called to the influence of the length of the period for which the respective associations pay sick benefits. Among those where benefits were paid for 52 weeks or over, the rate was 8.8 days of sickness per member. Among those where the benefit period was not over 26 weeks the rate was approximately 6 days of sickness per member. It is of interest to note that these figures do not vary greatly from estimates made by other investigators in this field.

Summarizing the results of their investigations the authors state that, "probably a conservative estimate of the total amount of sickness which will require medical service under the proposed health-insurance measures would be something between 8 and 9 days per insured person. This includes, of course, the first 3 days of sickness and sicknesses lasting less than 4 days for which medical service must be provided. With sickness expectancy of 9 days per insured person per year, the physician with 1,000 insured persons on his list might expect to have 20 to 40 of these constantly sick. That would mean making some 20 to 40 professional visits a day, though a certain proportion will be office visits. This estimate applies only to insured persons; if the families are to be included in the medical benefits and if the average family consists of wage earner, wife and child, the amount of medical work would be increased at least 200 per cent., for it may be safely estimated that the sickness expectancy in the family is at least twice as great as for insured persons."

TYPHOID FEVER.

A Public Health Report of recent issue contains several important articles relating to typhoid fever. Attention is called to the fact that a large proportion of the public water supplies in this country are sources of water-borne disease. An epidemic of typhoid fever in Herkimer, New York, is an illustration of an outbreak of the disease due to polluted water. In this instance, disastrous results followed the failure, through lack of expert supervision, to chlorinate a seriously contaminated water supply. The measures taken by the State Department of Health in controlling the epidemic are instructive.

The outbreak was first noted in September, 1918, and between that date and January 1, 1919, one hundred and fifty-five cases of typhoid fever, and twenty-eight deaths, were reported from Herkimer. In October, an epidemiological investigation was started, and information secured showed that the infection was due to the public water supply. Steps, under expert supervision, were then taken to chlorinate the water. At the present time, it appears that the outbreak has been definitely checked.

This report points out the necessity of maintaining the highest possible standards of sanitation and hygiene, in spite of the protective value of antityphoid vaccination. The incidence during the last five months of fevers of the typhoid-paratyphoid group among members of the American Expeditionary Forces em-

phasizes the fact that typhoid vaccination should not be considered a substitute for sanitary precautions. It is probable that the high standards of sanitation and personal hygiene established by the Medical Department for the last ten or fifteen years have not been wholly maintained during the last year and a half. This condition may be attributed to the lack of facilities and materials, transportation difficulties, and insufficient training and personnel. From June 1, 1917, to June 1, 1918, there were but few cases reported. During the Chateau-Thierry offensive, and after the St. Mihiel and Argonne offensives, the disease prevailed to some extent among our troops. It is important that reports of cases and suspected cases should be sent immediately to the medical officers of organizations in order to recognize the disease in its incipient stages and prevent its spread. This report contains an outline of a procedure which has been adopted in order that reports of typhoid and paratyphoid may be transmitted promptly, and enumerates briefly the usual clinical manifestations of these fevers, atypical modes of onset, differential diagnosis, and modifications of the usual clinical manifestations in vaccinated individuals.

WAR NEUROSES.

An article of unusual interest, considering with intelligence and insight the condition of war neuroses, has appeared recently in the *Atlantic Monthly*. The author, Frederick W. Parsons, remarks that we have all heard stories, especially at the beginning of the war, of the queer behavior manifested by men who have been exposed to particularly violent bombardment; the term "shell shock" became popular, and was soon applied to almost any unusual mental or nervous condition. This article considers the psychological aspects of the development of war neuroses, pointing out that the symptoms of war neuroses are not essentially different from peace-time neuroses, although they may assume slightly different forms because of the environment of war. The psychological principles of Freud are believed to be important in the production of peace-time neurosis; the individual, unable to adjust himself to a difficult situation, escapes by an unconscious avenue. In war neurosis also, the results of a true neurosis are never conscious and voluntary. Although the causes of war neuroses are many, the foundation of the condition may be traced usually to a difficult situation, whether it be lack of courage, association with uncongenial natures, a sense of injustice, or brooding over real or fancied wrongs. This internal mental conflict, added to poor sleeping, exposure, perhaps hunger, and the explosion of a shell near by, often result in a state of unconsciousness, sometimes followed by blindness, deafness, and loss of voluntary control over the motions. It is a mistake, however, to attribute these conditions to the shell explosion alone. They are the outcome of maladjustment in war as in peace.

The author of this article depicts also the attitude of the psychoneurotic individual who enjoys his neurosis greatly more than the life which caused it, and therefore clings to his symptoms. Either an over-sympathetic attitude or neglect may end in making permanent invalidism a result of what should be only a passing phase. An intelligent and sympathetic understanding on the part of the public will greatly benefit men who are returning to this country suffering from war neuroses.

AWARD OF DISTINGUISHED SERVICE MEDAL TO BOSTON PHYSICIAN.

Information has recently been received that the Distinguished Service Medal has been awarded by the United States Government to Colonel Joel E. Goldthwait of Boston. The order making this award reads as follows:

1. Under the provisions of cablegram number 2830 received from the War Department March 1, 1919, the Commander-in-Chief, in the name of the President, has awarded the Distinguished Service Medal to you for exceptionally meritorious and distinguished service as set forth below:

COL. JOEL E. GOLDTHWAIT, U. S. A.

For exceptionally meritorious and distinguished services.

As a member of the Medical Corps, he has, by his unusual foresight and organizing ability, made it possible to reclaim for duty thousands of men suffering from physical defects. He has thereby materially conserved for combat service a great number of men who would have been lost to the service.

This award is richly deserved, and is not only a great honor to the recipient, but reflects credit also on the Boston profession.

NOMINATION OF DR. BRADFORD.

In a previous editorial notice in regard to the candidacy of Dr. Bradford as member of the Board of Overseers of Harvard University, two errors were made. First, it should be noted that it is Dr. F. C. Shattuck, and not Dr. G. B. Shattuck, who has just completed his service on the Board of Overseers. In the second place, the profession will be represented next year, even if Dr. Bradford should not be elected, by Dr. W. S. Thayer of Baltimore. Dr. Thayer is a worthy representative of the profession, but in the nature of things, living at a distance, he cannot be in as close touch with the Medical School as one who is nearer to its activities. The importance of Dr. Bradford's candidacy, therefore, is as we have previously stated.

MEDICAL NOTES.

Cultivation of Medicinal Plants in France.—The *British Medical Journal* calls attention to the fact that the cultivation of medicinal plants, which was formerly a very active industry in France, has rapidly fallen off in the last half century. Before the war, the value of the imports of medicinal plants, mainly from Germany and Austria-Hungary, was estimated at tens of millions of francs. The Minister has, therefore, set up a committee for the purpose of organizing and intensifying the cultivation, gathering, and preparation of medicinal plants.

Results of Food Shortage in Germany.—In commenting on the shortage of food in Germany, the *British Medical Journal* states that at a meeting of medical societies in Berlin on December 18, 1918, Professor Rübner said that the danger was at first under-estimated, and implied that the effects of insufficient food were most marked in children. This agrees with information that comes to us from medical officers who have returned from the occupied territories. It appears to be established that cases of "war oedema," or "hunger oedema," common among prisoners of war in Germany, have also occurred among the civil population. It is a condition without fever, the main features being oedema and asthenia, sometimes preceded by diarrhea and mucous colitis. The oedema involves principally the lower extremities and can be cured by rest in bed and by giving at least 100 grams of fat a day.

European Relief Funds.—On April 7, the totals of the principal New England European Relief Funds reached the following amounts:

French Wounded Fund	$535,523.08
French Orphanage Fund	492,650.12
Italian Fund	285,407.38

Honor for Captain W. E. McGinley.—Captain W. E. McGinley of the Medical Corps, A. E. F., was decorated on April 3 with the Military Cross by King George, at Buckingham Palace.

Epidemics in Poland.—A recent report from Warsaw states that disease is prevalent throughout eastern and southeastern Poland. Thousands of the population are dying from epidemics of typhus, smallpox, and trachoma, and it is reported that whole towns have been practically wiped out by these diseases. In four years the population of Pinsk has been reduced from 50,000 to 25,000, and of the latter, 500 are down with typhus, lack of medical attendance, and proper nursing care. The disease and hunger were found in every house visited. An inspection of the orphan asylum disclosed 60 children afflicted with typhus.

Typhus in Baden.—A recent report from Berlin indicates that there is a severe epidemic of typhus at Pforzheim, Baden, and that thousands are succumbing to the disease. The epidemic is attributed to bad water.

Hospital Care for Men Discharged from Service.—The work of the Public Health Service has been extended by the enactment by Congress of a law entrusting to the Public Health Service the medical, surgical, and sanatorium care of discharged sick and disabled soldiers, sailors, and marines. A large proportion of the 24,500 soldiers, sailors, and marines discharged from active military and naval service because of tuberculosis, and approximately 50,000 suffering from psychoneuroses, epilepsy, and other nervous and mental disorders will have to be provided with hospital and sanatorium care. For this work, Congress has appropriated over $10,000,000.

Casualties in the Profession in Germany.—Figures cited in the *Mederlandsch Tijdschrift* indicate the casualties in the medical profession

in Germany. Twelve hundred casualty lists published by the German Army and Navy contained the names of 1,158 surgeons reported as slightly wounded, 332 severely wounded, 663 killed, 422 dead from disease, 212 taken prisoner, 72 missing, and 1 killed by gas.

SMALLPOX IN ITALY.—A recent report from Berne states that for seven weeks there has been a smallpox epidemic in the Province of Apulia, Italy. Thousands of the poorer classes in the provinces have died, and 1,500 in the city of Bari alone.

GUM OPIUM PRICES.—It has been reported that a reduction of $4.50 has been made in the price of gum opium, which is now being offered at $18 a pound. About 200 cases of opium are now on the way from Turkey, and it is generally believed that the prices of codeine and of some of the other narcotic drugs used in the treatment of influenza will be lowered. Another reduction of seven cents a pound in the price of acetanilid to 42 cents a pound, which is equal to a 15 per cent. reduction on the selling price, is announced by manufacturers.

STATISTICS OF INFLUENZA EPIDEMIC.—Statistics of the recent influenza epidemic in hospitals and other institutions have been or will be systematically collected, analyzed, and published. In order to get, however, an accurate total picture of this important outbreak of disease, it seems desirable and necessary also to collect similar statistics from the private practice of physicians in Massachusetts, since the clinical aspect of the epidemic presented different and distinctive features under private and institutional conditions. For this purpose the JOURNAL urges all physicians to send to its office briefly tabulated statistics of influenza cases from their private practice from September 1, 1918, to February 1, 1919. The JOURNAL will be glad to collect and collate these data, and will place them in the hands of one or more competent persons for compilation, study, and publication as a contribution to the comparative clinical knowledge of this important epidemic scourge.

PREVALENCE OF SMALLPOX.—A recent issue of the *British Medical Journal* has called attention through the writings of R. Bruce Low, to the incidence of smallpox in all parts of the world. This article states facts and figures relating to smallpox which are particularly opportune because of the present danger of an outbreak of the disease due to war conditions. After the Franco-German war in 1870, the disease, resulting in the death of half a million people, spread first among the belligerent nations and later throughout the whole of western and northern Europe. In 1917, smallpox was prevalent in central Europe, and at the present time it exists in Russia and other countries. Shipping is often the means of infection, a fact which makes the danger to this country a serious one. The results which may come from the neglect of vaccination and revaccination should be carefully considered. As many physicians best qualified to deal with an epidemic outbreak are engaged in military service, individual persons should assume more responsibility in this matter. The *British Medical Journal* points out that although smallpox has been prevalent in Germany, of one thousand consecutive cases examined to ascertain the age incidence, only one hundred and fifty were under the age of thirty years, and five hundred of the remaining eight hundred and fifty had attained the age of sixty years. The disease attacked those who were either unvaccinated, or had not been revaccinated within ten years.

CONTROL OF VENEREAL DISEASES.—The U. S. Public Health Service is putting forth the most strenuous efforts to lessen venereal disease, and is enlisting the assistance of all physicians and druggists. The various State Boards are cooperating most actively. The New York State Board of Health, for example, has established venereal clinics in the larger cities and towns and is conducting post-graduate courses in New York for the training of medical men to handle the work in these clinics.

In the belief that the syphilis situation could be handled better if treatment for the general public were made possible, the Metz Laboratories of New York are offering to the Government and to the institutions coöperating with the U. S. Public Health Service Salvarsan and Neosalvarsan practically at cost. These same low prices have been extended to all state and municipal institutions treating the general public, so that there may be no further excuse why the poor should not get the benefit of the best methods in the treatment of syphilis.

DEPARTURE OF AMERICAN SURGEONS FOR FRANCE.—Dr. J. Chalmers Da Costa, chief surgeon to the Jefferson Hospital, and Samuel D.

Gross, professor of surgery in Jefferson Medical College, departed for France on the transport *George Washington* on April 12. Dr. Da Costa is a lieutenant-commander in the Navy, and orders for his departure were received from the Navy Department.

American Soldiers in British Hospitals.—During the year 1918, 47,862 American soldiers were treated in British hospitals. Of this number, about one-fifth were wounded or injured, the remainder ill. It has been reported that at the time of the signing of the armistice, 9310 Americans were being cared for in American hospitals in Great Britain. There were only two or three American Red Cross hospitals, which were being used for British troops, at the time the United States entered the war; since that time, however, the Red Cross has developed so rapidly that when large numbers of American forces began to need hospital attendance, there was ample provision for them, except at the time of the influenza epidemic, when it was necessary to send many Americans to British hospitals. The United States Army personnel engaged in American hospitals in Great Britain numbered about 3200, that of the American Red Cross about 400.

Red Cross Conference at Cannes.—The last meeting for the discussion of general subjects at the conference being held at Cannes in preparation for the convention of the Red Cross societies of the world at Geneva was held on April 5. At the next meetings, plans for establishing an international bureau of health will be discussed more specifically.

Sir Robert Philips of Edinburgh addressed the delegates on the subject of tuberculosis work in England, and is reported to have said that the work which has been accomplished in the last twenty-five years would be completed in as many months if such an organization as the one proposed by the Red Cross existed. Dr. Kabeshima of Japan and Col. Sesar Baduel of the Italian Red Cross read reports which seemed to favor the Red Cross project.

Appointment of Dr. Ivan E. Wallin.—Dr. Ivan E. Wallin has been appointed acting professor and head of the department of anatomy in the University of Colorado School of Medicine. Dr. Wallin was recently advanced to an associate professorship in the medical school of Marquette University.

Appointments at Glasgow University.—Three appointments have been made recently at Glasgow University: Dr. Thomas Walmsley, lecturer in anatomy, with special reference to embryology; Mr. A. McL. Watson, lecturer in physiology, with special reference to histology; Dr. John McL. Thompson, lecturer in botany, with special reference to plant morphology.

Physical Defects in School Children.—Investigations which have been conducted by members of the executive committee of the national physical education service have led them to the belief that practically fifty per cent. of the twenty-five million boys and girls in this country of school age have physical defects and ailments which impede their normal development. This condition is attributed to a lack of proper physical education, and a broad program of State and Federal legislation for the required education has been advocated by the committee as a means of bringing the children to the proper standard.

Award of Honorary Degree.—The honorary degree of LL.D. of the University of Dublin has been awarded to Lieutenant General Sir Charles H. Burtchaell, K.C.B., director-general of the British Army Medical Service in France. He has received also the honorary fellowship of the Royal College of Surgeons in Ireland.

Honor for American Surgeon.—In recognition of his services as Medecin Chef of Hôpital militaire 32 bis, Passy, France, during the year 1916, the French Government has named Major John W. Churchman, M.R.C., "Officier de l'Instruction Publique." Major Churchman is a professor of surgery at Yale University.

Montefiore Home and Hospital.—Medical Research, independent of the hospital laboratory work, will be promoted at Montefiore Home and Hospital, Gun Hill Road, New York City, by the use of the income of a fund which has been given to this institution. The selection of a director of research is being considered.

Research Studentship in Physiology.—The Michael Foster research studentship in physiology at the University of Cambridge will be increased by its founder, Dr. J. B. Hurry, from a hundred guineas to £200.

Appointment of Dr. Eugene L. Porter.—Dr. Eugene L. Porter has been appointed assistant professor of physiology at the Western Reserve University Medical School. He is now instructor in physiology in the University of Chicago.

Work of Dr. Farrand.—Dr Ligingston Farrand, as director of the activities of the American Red Cross, will be enabled, through his past experience and with the support of this great organization, to coördinate more closely health agencies of this country, to promote public health work, and to make the campaign against preventable disease a stronger one. For ten years Dr. Farrand served as the Executive officer of the National Tuberculosis Association, and during the war he conducted antituberculosis work in France under the Rockefeller Foundation. The American Red Cross with its seventeen million members and fifteen thousand local chapters, under the leadership of Dr. Farrand, will be wisely guided in the execution of its far reaching health projects.

400,000 Influenza Deaths in Germany.—Figures published in the *German Medical Journal* recently show that during the last eighteen months, influenza has caused 400,000 deaths in Germany.

British Death and Birth Rates.—A recent report from London indicates that in the last quarter of 1918, the number of deaths in England exceeded the birth rate, for the first time in the history of civil registration in that country. Upon the publication of this report the War Office announced the release in one week of seven hundred physicians from the army.

The death rate has been greatly increased by influenza, the number of deaths from that cause being 98,998, or forty-one per cent. of the total deaths for the period. It is believed that lack of physicians for controlling the epidemic is the cause of the great number of deaths. At the beginning of April, although 1,750,000 men of the army had been demobilized, only 1500 out of 11,000 physicians had been released.

Army Health Conditions.—The report of the Surgeon General for the week ending April 4 indicates a continued decline in the prevalence of serious diseases among troops at home and abroad. The majority of the deaths resulted from pneumonia and tuberculosis. The death rate from disease in the United States dropped from 7.9 per thousand per year to 7.5, and in the overseas forces from 7 to 5.

Honor for American Nurses.—Ten American Army nurses have been awarded the Medaille de Honneur des Epidemies by the French Government, according to word that has just reached national Red Cross headquarters. The presentation ceremony took place at A. R. C. Military Hospital No. 112, Auteuil, in the presence of a distinguished gathering, twenty-three officers of the American Medical Corps and seven enlisted men of the Army receiving the decoration at the same time.

The nurses honored by France were: Bessie Mae Warwick, McDonald, Pa.; Rose A. Cassidy, Brandywine Summit, Pa.; Karen M. Lauridsen, Astoria, Oreg.; Agnes W. Reid, La Crosse, Wis.; Pearl Worley, East Greenville, O.; Edith L. Hadsall, New Rochelle, N. Y.; Lillian E. Radcliffe, Montreal, Can.; Esther V. Hasson, Washington, D. C.; Myrtle Brondel, address not given; Mary C. Cavin, address not given.

Fiftieth Anniversary of the American Medical Editors' Association.—The fiftieth anniversary of the American Medical Editors' Association will be held at Atlantic City, Marlborough-Blenheim Hotel, on June 9th and 10th. The Executive Committee is arranging a fitting program for the occasion, and it is expected that seventeen ex-presidents will be present at the meeting. There will be a banquet on Tuesday evening, June 10th.

Influenza in Switzerland.—It has been officially reported from Switzerland that 700,000 out of that country's population of 4,000,000, have been affected by influenza. These figures represent 17.5 per cent. The situation in Switzerland has been similar to the conditions in England, in that two distinct waves, reaching their highest points in July and again in October, were noted. In July there were 53,698 cases of influenza, and in October there were 263,399 cases in Switzerland.

Boston and Massachusetts.

Forsyth Dental Infirmary.—The Forsyth Dental Infirmary is accomplishing inestimable hygienic service for the children of Boston and its vicinity. The purpose of the institution is

to instruct the rising generation not only in oral hygiene, but in general hygiene as well; to improve the nutrition of children and thereby benefit their physical and mental growth; to decrease their chances of contracting disease and enable them to resist it better if contracted. The further aim of this institution is to promote the dental profession, not only in research, but also in clinical work, by establishing a closer affiliation among members of the profession.

The fourth annual report records the activities of the Forsyth Dental Infirmary during the past year. The influenza epidemic interfered with the operation of the clinic, for it was necessary to close the Infirmary for a period of four weeks. A course which was conducted on the study and care of very young children, available to all registered dentists, has been found valuable by those who have taken advantage of it. A department of consultation and diagnosis has been established, in order that dentists may avail themselves of the advice of specialists and special diagnostic appliances connected with the Infirmary.

The Infirmary has adopted the policy of encouraging the attendance of very young children, with splendid results. In order to arouse interest among the children, a banner, "All Dental Work Completed," has been awarded by the Infirmary to the first, second, and third grades which have qualified; eighteen of these banners have been awarded. Approximately 1700 children were treated during the summer alone.

The Postgraduate School of Orthodontia has been closed during the past year because practically all who intended to take the course entered the service. The school will reopen in October. A special course in army dentistry was established for members of the Staff holding commissions in the Dental Reserve Corps. During the winter, under the auspices of the Educational Committee of the Massachusetts Dental Society, a special preparedness course, with an enrollment of about three hundred, was conducted. In order to coöperate with the Government, plans are being made for the re-education of wounded soldiers and sailors in the art of mechanical dentistry.

Award of Croix de Guerre to Cambridge Physician.—Lieutenant Abraham F. Thomas, a Cambridge physician, has been awarded the French Croix de Guerre. Dr. Thomas is attached to Ambulance Company I, 2nd Division, now in Germany.

Prevalence of Smallpox.—Another case of smallpox has been discovered in Boston, and the Board of Health urges all persons not recently vaccinated to be vaccinated at once. There are now three cases of the disease in the detention hospital. Smallpox has been unusually prevalent during the winter, especially in the middle West, and also in Canada. More than one hundred cases have been reported in Nova Scotia alone up to the first week of March. New England States have been relatively free from the disease, although during February fifty-six cases were reported in Maine, and during the week ending March 22, sixteen new cases were found in various parts of Massachusetts. The disease has shown itself in a very mild form, and so far has attacked only unvaccinated persons.

Clinical Professorship for Dr. Hugh Cabot.—Dr. Hugh Cabot has been appointed clinical professor of genito-urinary surgery for the coming year at Harvard University.

Obituaries.

MISS JANE A. DELANO.

Miss Jane A. Delano, who died April 15th, at Base Hospital No. 8, at Sauvigny, France, was one of the foremost figures of the nursing world. It was under her direction that more than 30,000 nurses were recruited through the American Red Cross for service with the Army and Navy after the United States entered the great conflict. She was born in Watkins, New York, in 1862. Her father was killed in the Civil War, and she was reared by her grandfather, a Baptist clergyman.

The call to relieve suffering humanity came to her while still a young girl, and after her preliminary education she began fitting herself for the career in which she was destined to attain such great prominence.

Miss Delano graduated from Bellevue Hospital, New York, in 1886, and two years later rendered her first patriotic service to her country by volunteering to nurse yellow fever victims in Jacksonville, Fla. Up to the time Miss Delano and a few other courageous trained nurses went to Jacksonville from New York, the fever patients had been cared for by some

negro nurses who, while willing and devoted, lacked the scientific skill necessary to combat successfully the dread malady.

Although at that time medical science had not decided that the mosquito was a yellow fever carrier, Miss Delano had reached that conclusion and had insisted on the use of mosquito netting by her nurses, with the most satisfactory results.

Her work in Jacksonville finished, Miss Delano was called to Bisbee, Ariz., in 1889, to establish a hospital for one of the big copper companies. Two years later she was made superintendent of the nurses' training school of the University of Pennsylvania, a position she held for five years. Special courses in philanthropy and medicine further increased her knowledge, and in 1900 she returned to Bellevue Hospital to direct the nurses' training school there, continuing in that capacity until 1905.

When the American Red Cross, following the reorganization in 1906, entered into an agreement with the American Nurses' Association for the purpose of developing a nursing reserve for the Army Nurses' Corps, Miss Delano was appointed chairman of the committee in charge of the work.

She was also named as superintendent of the Army Nurse Corps by the Surgeon-General, in which capacity she visited the Philippine Islands, China, Japan, and Hawaii. Due to her untiring effort, 8,000 carefully selected nurses were available for government service at the time the United States entered the war, and her leadership was largely responsible for the success of the nurses' recruiting campaign which followed.

Miss Delano served three times as president of the American Nurses' Association and also served several years as head of the directorate of the *American Journal of Nursing*.

She was a woman of striking personality and appearance. Regal in carriage, a mass of snow white hair crowning a strong, but kindly face, she was a commanding figure in any gathering. A gentle manner and sympathy that was boundless won for her a great circle of friends.

Miss Delano served the American Red Cross from first to last without compensation—a full time volunteer. She was the last of her family, her passport application, filed a few months ago, giving the name of a prominent nurse as her "nearest relative."

NOMUS PAIGE, M.D.

Dr. Nomus Paige died at his residence at Taunton, April 16, 1919, aged 79 years.

He was born in Wentworth, N. H., March 26, 1840, the son of Joseph and Pamelia Elsworth Paige. He was educated in the public schools of that town and at Kimball Union Academy at Meriden, N. H., and was graduated from the medical department at Dartmouth College with the class of 1861. While there he received instruction from Professor Dixi Crosby, professor of surgery. He was an interne at the hospital at Deer Island, Boston, while in college, and after his graduation, was a member of the staff of the Taunton Insane Hospital till 1863, when he opened an office for the practice of medicine in Taunton. For some time he was a member of the staff of the Morton Hospital.

He was at one time a member of the Taunton city council, served on boards of directors of manufacturing and financial enterprises, and founded the municipal lighting plant of the city of Taunton.

He was a member of St. Thomas' Episcopal church.

Dr. Paige joined the Massachusetts Medical Society in 1864, and was placed on the retired list in 1906.

He was twice married; first to Maria Josephine Hewins of Hyde Park, who died in 1876, and later to Mrs. Nora (Colby) Baylies, daughter of Mr. and Mrs. Samuel Colby of Taunton. Two children were born of the latter marriage, Russell Colby Paige, a Taunton merchant, and Katherine Colby Paige Leach, wife of Eugene W. Leach. These children and his widow survive him.

Miscellany.

MEMORIAL TO CLARKE STORER GOULD, M.D.

On March 28, 1919, Dr. Clarke Storer Gould, of Norwood, died at the Peter Bent Brigham Hospital, Boston, of septicaemia.

Dr. Gould was born August 2, 1864, in South Boston, and was the son of Dr. Joseph Ferdinand Gould and Lydia (Lawrence) Gould. He was graduated from the Harvard Medical School in 1887, and began practice in Maynard, Mass., but in 1889 moved to Norwood, Mass., which had been his home ever since.

On July 10, 1917, Dr. Gould was commis-

sioned Lieutenant in the Medical Corps of the U. S. Army, and went to Fort Benjamin Harrison, Indiana, for training.

Nov. 10th, the same year, he was promoted to captain, and was stationed at the Base Hospital, Camp Sherman, Chillicothe, Ohio. He was honorably separated from the service on December 27, 1918.

Dr. Gould was a member of Orient Lodge, A. F. & A. M., the Massachusetts Medical Society, and Norfolk County Medical Association.

With his genial manner and social disposition, Dr. Gould won hosts of friends and was very popular in the community. His death was unexpected and came as a shock.

He is survived by his widow, a son, Joseph H. Gould, and a daughter, Hilda P. Gould.

Services were conducted by the Rev. Edward C. Downey, pastor of the church which Dr. Gould had attended about thirty years.

The masonic funeral ceremony was conducted by Worshipful Master Alvin K. Parker, Chaplain W. Lenoir Hood, and officers and members of Orient Lodge, A. F. & A. M.

A tribute to Dr. Gould's efficient service as captain in the Medical Corps, U. S. A., during the World War was the presence, in uniform, as ushers and bearers, of six young men who served in the war.

Cremation was at Forest Hills.

UNITED STATES CIVIL SERVICE EXAMINATIONS.

Assistant Epidemiologist (Male). $2,000-$2,500. June 3, 1919.

The United States Civil Service Commission announces an open competitive examination for assistant epidemiologist, for men only. Vacancies in the Public Health Service at $2,000 to $2,500 a year, and in positions requiring similar qualifications at these or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion. Certification to fill the higher-salaried positions will be made from those attaining the highest average percentages in the examination.

The duties of this position will consist in making epidemiologic and sanitary surveys to determine the prevalence and causation of disease, conducting laboratory studies in relation thereto, and recommending measures to prevent and control outbreaks of disease.

It is desired to secure persons with the following qualifications:

1. Experience in making epidemiological studies of diseases.
2. Familiarity with methods for the prevention of communicable diseases.
3. Acquaintance with all public health laboratory methods.
4. Ability to design and supervise public health laboratory work.
5. Familiarity with methods of disease reporting.
6. Experience in computation and tabulation.

Competitors will not be required to report for examination at any place, but will be rated on the following subjects, which will have the relative weights indicated:

Subjects	Weights
1. General education and medical training	25
2. Laboratory experience	25
3. Experience in epidemiological work	40
4. Publications or thesis (to be filed with application)	10
Total	100

Under the first three subjects competitors will be rated upon the sworn statements in their applications and upon corroborative evidence adduced by the Commission.

Graduation from a medical school of recognized standing and at least three years' experience in epidemiological work under Federal, State, or local authorities, and experience in laboratory technic, especially in regard to malaria and typhoid fever, are prerequisites for consideration for this position.

If a thesis is submitted under Subject 4, it must be on some sanitary subject upon which the candidate has done special work.

Applicants must have reached their twenty-third but not their fortieth birthday on the date of the examination.

Applicants must submit with their applications their unmounted photographs, taken within two years, with their names written thereon. Proofs or group photographs will not be accepted.

This examination is open to all male citizens of the United States who meet the requirements.

Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass.; New York, N. Y.; New Orleans, La., Honolulu, Hawaii; Post Office, Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif.; Old Customhouse, St. Louis, Mo.; Administration Building Balboa Heights, Canal Zone; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Applications should be properly executed, excluding the medical and county officer's certificates, and must be filed with the Civil Service Commission, Washington, D. C., with the material required, prior to the hour of closing business on June 3, 1919.

The exact title of the examination, as given at the head of this announcement, should be stated in the application form.

Consulting Physiologist (Male). June 3, 1919.

The United States Civil Service Commission announces an open competitive examination for consulting physiologist, for men only. A vacancy in the Bureau of Mines, Washington, D. C., at $10 per diem when employed, and future vacancies requiring similar qualifications, at this or higher or lower rates of pay, will be filled from this examination unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

The duties of the appointee will be to study the physiology of gas poisoning, with special reference to gases in mines and in the manufactures associated with mining.

Competitors will not be required to report for examination at any place, but will be rated on the following subjects, which will have the relative weights indicated, on a scale of 100: (1) Education, 40; (2) Experience, 40; (3) Publications, to be submitted with application, 20.

Under the first two subjects competitors will be rated upon the sworn statements in their applications and upon corroborative evidence adduced by the Commission.

A degree of M.D., or Ph.D. from an institution of recognized standing, and at least two years' experience, one year of which must have been post graduate, in the physiology of respiration and poisonous gases, are prerequisites for consideration for this position. A certificate of this training from the director of the laboratory in which the work was done must accompany the application.

Applicants must have reached their twenty-first birthday on the date of the examination.

Applicants will be admitted to this examination regardless of their residence and domicile; but only those who have been actually domiciled in the State or Territory in which they reside for at least one year previous to the examination, and who have the county officer's certificate in the application form executed, may become eligible for permanent appointment to the apportioned service in Washington, D. C.

Applicants must submit with their applications their unmounted photographs, taken within two years, with their names written thereon. Proofs or group photographs will not be accepted.

This examination is open to all male citizens of the United States who meet the requirements.

Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass.; New York, N. Y.; New Orleans, La., Honolulu, Hawaii; Post Office, Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif.; Old Customhouse, St. Louis, Mo.; Administration Building Balboa Heights, Canal Zone; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Applications should be properly executed, excluding the medical officer's certificate, and must be filed with the Civil Service Commission, Washington, D. C., with the material required, prior to the hour of closing business on June 3, 1919.

ASSISTANT TO MEDICAL DIRECTOR (MALE), $2,000.
June 3, 1919.

The United States Civil Service Commission announces an open competitive examination for assistant to medical director, for men only. A vacancy in the United States Employees' Compensation Commission at $2,000 a year, and vacancies in positions requiring similar qualifications, at this or higher or lower salaries, will be filled from this examination, unless it is found in the interest of the service to fill any vacancy by reinstatement, transfer, or promotion.

Competitors will not be required to report for examination at any place, but will be rated on the following subjects, which will have the relative weights indicated, on a scale of 100: (1) General education and medical training, 35; (2) Practical and professional experience and fitness, 45; (3) Publications or thesis (to be filed with application), 20.

Under the first two subjects competitors will be rated upon the sworn statements in their applications and upon corroborative evidence adduced by the Commission.

Applicants must have graduated from a medical school of recognized standing and have had at least one year's experience in Federal, State, or municipal employ.

Under the first subject special credit will be given for the possession of an academic degree.

Under the third subject the thesis should be of at least 500 words in length, on the diagnosis and treatment of fractures.

Applicants must have reached their twenty-fifth but not their forty-fifth birthday on the date of the examination.

Applicants will be admitted to this examination regardless of their residence and domicile; but only those who have been actually domiciled in the State or Territory in which they reside for at least one year previous to the examination, and who have the county officer's certificate in the application form executed, may become eligible for permanent appointment to the apportioned service in Washington, D. C.

Applicants must submit with their applications their unmounted photographs, taken within two years, with their names written thereon. Proofs or group photographs will not be accepted.

This examination is open to all male citizens of the United States who meet the requirements.

Applicants should at once apply for Form 2118, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the Secretary of the United States Civil Service Board, Customhouse, Boston, Mass.; New York, N. Y.; New Orleans, La., Honolulu, Hawaii; Post Office, Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif.; Old Customhouse, St. Louis, Mo.; Administration Building Balboa Heights, Canal Zone; or to the Chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

Applications should be properly executed, excluding the medical officer's cetificate, and must be filed with the Civil Service Commission, Washington, D. C., with the material required, prior to the hour of closing business on June 3, 1919.

SOCIETY NOTICES.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY.—The annual meeting of the Essex South District Medical Society will be held at the Relay House, Nahant, Wednesday, May 14, 1919, at 6.30 P.M.

Dr. Hugh Cabot will be the guest of the evening and will speak on the "Development of the Treatment of Wounds, 1916-1918."

J. J. EGAN, M.D., *President.* H. P. BENNETT, M.D., *Secretary.*

ESSEX NORTH DISTRICT MEDICAL SOCIETY.—The annual meeting of the Essex North District Medical Society will be held in Russell Hall, Y. M. C. A. Bldg., 40 Lawrence Street, Lawrence, Wednesday, May 7, 1919.

Papers will be presented as follows: C. Morton Smith, M.D., of Boston, Assistant Professor of Syphilis at Harvard University Medical School, upon "How can Unrecognized Syphilis be Detected?" (40 minutes.)

E. H. Place, M.D., of Boston, Assistant Professor of Pediatrics at Harvard University Medical School, upon "Problems for the Practitioner in the Acute Contagious Diseases." (40 minutes.)

Meetings of the Censors will be held at Hotel Bartlett, Main Street, Haverhill, (Tel. 8710) on the first Thursday in May and November, at 2 P.M. Candidates for admission to the Society should present their diploma to the Secretary of the Society two weeks before.

F. E. SWEETSIR, M.D., *Pres.* J. FORREST BURNHAM, M.D., *Sec.*

THE NORFOLK DISTRICT MEDICAL SOCIETY.—The sixty-ninth annual meeting will be held at Hotel Thorndike, Boston, on Tuesday, May 13, 1919, at 5 P.M.

Business meeting: (1) Minutes of previous meeting, (2) Report of Committees, (3) Report of Treasurer, (4) Election of Officers, (5) Incidental business.

Dinner at 6 P.M.

Seats have been engaged for the evening performance at B. F. Keith's theatre. The tickets are for reserved seats in the orchestra and will be distributed during the dinner that members sitting together may be able to do so at the theatre as well.

An assessment of two dollars will be made for the dinner and theatre.

E. N. LIBBY, M.D., *President.* BRADFORD KENT, M.D., *Secretary.*